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AGENDA
PLANNING AND ZONING COMMISSION MEETING
CITY OF CREVE COEUR, MISSOURI
MONDAY, NOVEMBER 5, 2012
7:00 PM

1. ROLL CALL

Mr. Michael Barton
Mr. Gary Eberhardt
Mr. James Faron
Mr. Ken Howard
Ms. Cynthia Kramer
Mr. Tim Madden
Mr. Jim Schnarr
Mr. Carl Lumley, City Attorney
Mr. Paul Langdon, AICP, Director of Community Development
Ms. Whitney Kelly, AICP, City Planner
Ms. Julie Lowery, Recording Secretary

Pursuant to Section 610.022 RSMO, the Planning and Zoning Commission could, at any time during the meeting, vote to close the public meeting and move to closed session to discuss matters relating to litigation, legal actions and/or communications from the City Attorney as provided under Section 610.021(1) RSMo. and/or personnel matters under Section 610.021(13) RSMo. and/or employee matters under Section 610.021(3) RSMo. and/or real estate matters under Section 610.021(2) or other matters as permitted by Chapter 610.

Reports, documents, plans, and related materials are available for examination at the Creve Coeur Government Center, 300 North New Ballas Road, prior to the meeting.

Special disabled service may be arranged by contacting the Office of the City Administrator in advance.

2. ADDITIONS TO – ACCEPTANCE OF THE AGENDA

3. APPROVAL OF MINUTES

A. Draft minutes of the October 15, 2012 meeting.

4. PUBLIC COMMENT

An opportunity for members of the public to address the Planning and Zoning Commission regarding issues or concerns not already on the agenda for this meeting. Those wishing to speak will be asked to limit comments to three minutes and to complete a speaker card.

5. UNFINISHED BUSINESS

- A. Stormwater Master Plan Update.** City staff will present the Stormwater Master Plan update report to the Commission for their consideration to recommend approval of the report to the City Council.

Applicant: Matt Wohlberg
City Engineer

- B. Application #12-027: A request to allow rezoning and re-subdivision of the former Belle Maison subdivision from "A" Single-Family Residential with a Residential Design Development (RDD) approval to "PRD" Planned Residential Development for 10 single-family residential lots, a 180-bed skilled care facility, and a 160-unit senior living facility. REQUEST FOR CONTINUANCE**

Applicant: Delmar Gardens Creve Coeur Renaissance, LLC
14805 N. Outer Forty Drive, Suite 300
Chesterfield, MO 63017

6. NEW BUSINESS

- A. Middlebrook and Chilton Culvert Rehabilitation Projects.** City staff will present the final design plans for the replacement of drainage culverts beneath Middlebrook Lane and Chilton Lane, for recommendation to the City Council.

Applicant: Matt Wohlberg
City Engineer

- B. Application #12-031: Request for approval of a preliminary plat for 222 N. Mason Road, Lot A.**

Applicant/Agent:
Chris Vatterott
The Enclave Bellerive, LLC
332 Wythe House Court
Creve Coeur, MO 63141

- C. Application #12-032: Request for approval of a minor site development plan for a "front-yard" five-foot wood privacy fence along Gallagher Road.**

Applicant: Furqan Raja
12955 Barbezieux Drive
Creve Coeur, MO 63141

7. WORK AGENDA

- A. Discussion of SIC use code conversion to NAICS use codes.**
B. Transmittal of updated Form-Based Code Graphics

8. OTHER BUSINESS

- A. Planning Division Report**
- B. City Attorney Report**

9. ADJOURNMENT

Posted: _____
Julie Lowery
Planning Division Assistant



**CITY OF CREVE COEUR - MINUTES
PLANNING AND ZONING COMMISSION MEETING
MONDAY, OCTOBER 15, 2012
7:00 P.M.**

A public hearing and regular meeting of the Planning and Zoning Commission of the City of Creve Coeur, Missouri was held on Monday, October 15, 2012, at the Creve Coeur Government Center, 300 North New Ballas Road. Chair Tim Madden called the meeting to order at 7:00 p.m.

MEMBERS PRESENT: *Mr. Tim Madden, Chair*
 Dr. Michael Barton
 Mr. Gary Eberhardt
 Mr. James Faron
 Mr. Ken Howard
 Ms. Cynthia Kramer
 Mr. Jim Schnarr

OTHERS PRESENT: *Mr. Carl Lumley, City Attorney*
 Mr. Paul Langdon, Director of Community Development
 Ms. Whitney Kelly, AICP, City Planner
 Ms. Julie Lowery, Recording Secretary

2. ADDITIONS TO – ACCEPTANCE OF THE AGENDA

The Agenda was accepted as written, with the exception to hear Application #12-029 before Application #12-027.

3. APPROVAL OF MINUTES

Draft Minutes of September 17, 2012

Mr. Eberhardt moved approval of the draft minutes as written, and Mr. Faron seconded the motion, which carried unanimously.

4. PUBLIC COMMENT

None

5. UNFINISHED BUSINESS

None

6. NEW BUSINESS

A. PUBLIC HEARING

Application #12-029: Approval of an amendment to the Master Sign Plan to include a multi-tenant real estate sign for the Medical Atrium Building at 555 N. New Ballas Road.

Applicant: Kevin P. Aholt
Land Dynamics, Inc.
7800 Forsyth Blvd, Suite 800
Clayton, MO 63105

Mr. Don Ferguson, Land Dynamics, explained that the original Master Sign Plan did not include a real estate information sign. Mr. Ferguson stated Land Dynamics has no problem complying with Staff's recommendations.

There being no further comments, City Attorney, Mr. Carl Lumley, presented the exhibits for the record and the public hearing was closed.

(This ends the Public Hearing; see verbatim transcript for further information)

Mr. Eberhardt motioned to recommend approval of the amended Master Signage Plan for the property located at 555 N. New Ballas to include real estate information signage, submitted with Application #12-029, subject to the conditions contained in the draft ordinance attached to the staff report for the meeting of October 15, 2012 that includes the condition for the 150 foot separation subject to the 50 foot discretion of the Administrator. Mr. Faron seconded the motion with the resultant vote as follows:

Mr. Eberhardt – aye
Ms. Kramer – aye

Mr. Faron – aye
Mr. Schnarr – aye

Mr. Howard – aye
Chair – aye

B. PUBLIC HEARING

Application #12-027: A request to allow rezoning and re-subdivision of the former Belle Maison subdivision from "A" Single-Family Residential with a Residential Design Development (RDD) approval to "PRD" Planned Residential Development for 10 single-family residential lots, a 180-bed skilled care facility, and a 160-unit senior living facility.

Applicant: John P. Kling, Lathrope and Gage, LLP, on behalf of
Delmar Gardens Creve Coeur Renaissance, LLC
14805 N. Outer Forty Drive, Suite 300
Chesterfield, MO 63017

Mr. Paul Langdon, Director of Community Development, City of Creve Coeur, presented to the Commission the history of the property and explained the property in correlation to the Comprehensive Plan. Mr. Langdon went on to explain the proposed project. Mr. Langdon stated he did not believe the property could be used in the manner the applicant proposed it; however he does believe it to be a good project, just not the right place. Mr. Langdon also pointed out the land has remained vacant because Delmar Gardens owns it.

Mr. Howard Oppenheimer, 14805 N. Outer 40, presented the application to the Commission. Mr. Oppenheimer spoke about the vision of the property and explained there would be approximately 340 senior citizens able to occupy the units proposed. Mr. Oppenheimer presented a slideshow presentation.

Mr. Larry Milles, Gray Design Group, 9 Sunnen Drive, St. Louis, MO 63143, presented a slide show of the site, pointing out access points, roads, amenities, and features. Mr. Milles pointed out at the northern edge there is an 80 foot landscape buffer, 8 foot berm for buffering, 160 units in the independent and assisted living spaces, and the proposal consists of high quality materials (stones for landscaping and lighting, etc.).

Ms. Shawn White, Crawford, Bunte, Brammeier, 1830 Craig Park Ct, presented the traffic study addressing the impacts of the site. The study was developed in accordance with MoDOT's guidance. Ms. White pointed out there would be shared access with existing Caring Counseling Center. Ms. White stated they have been working with the development team on this project for over 2 years. Initially, the access for the site was across from Ladue Pines and there was a traffic signal sign proposed, however MoDOT denied the request. Ms. White stated the data was collected in spring 2010, and the study highlighted peak hours, which consist of morning, afternoon, and school peaks. Ms. White added there would only be a 2% increase of traffic onto Ladue Road.

Mr. Ken Schaeffler, The Clayton Engineering Company, explained the specifics of the site. Mr. Schaeffler provided numbers, infrastructure and take all the storm water problems and get them worked out. Mr. Schaeffler stated the proposed application yields 10 single-family lots and 292 units for the Delmar Gardens skilled care and assisted/independent living facility. Mr. Schaeffler pointed out the numbers came from the zoning of the property (Single-family residential) and the proposed zoning change (Planned Residential District). The required parking spaces for the site are 302 and the proposal includes 310. Mr. Schaeffler showed the civil engineering plans and pointed out entry points.

Mr. Dan Lang, The Lang Gang, 15 Fox Valley Drive, Lake Saint Louis, MO 63367, spoke to the City's Comprehensive Plan. Mr. Lang stated the Comp Plan should be used as guide and subjective judgment should be used. Mr. Lang also stated he believed the Comp Plan needed to reassessed, that aging proposes planning issues and senior housing, Delmar Gardens, offers the Planning issues that arise. Mr. Lang spoke to the changing of the Zoning districts and how the Planned Residential District allows for the proposed plan to stay on track. Mr. Lang pointed out the economic benefits of the project, stating 210 permanent positions and 300 construction jobs. Lastly, Mr. Lang listed the benefits of the project, listing landscaping and buffering issues solved, addressing the Comp Plan need for senior housing, storm water control, improved access, and high quality buildings and materials with rich landscaping that can happen now.

Mr. Gabe Grossberg, President, Delmar Gardens, stated in closing remarks, that he has been in this business for 37 years. Mr. Grossberg said Delmar Gardens are ready, willing, and able to get the project done to the standards the City requires.

List of Creve Coeur residents who spoke in opposition of this application:

1. Jeff Igou – 12225 Kingshill
2. Robert Hahn – 131 Ambleside Lane

3. Marsha Schuman – 19 Beacon Hill Drive
4. Judy Campbell – 314 Lyonnais Drive
5. Steve Wasserman – 272 Prince Towne Drive
6. Judy Wasserman – 272 Prince Towne Drive
7. Gary Ratkin – 12217 Kingshill
8. Doron Berger – 133 Ladue Oaks Drive
9. Edwin Thomas – 153 Ladue Oaks Drive
10. Elliot Cytron – 151 Ladue Pines
11. Charles Pullium – 168 Ladue Oaks Drive
12. Colman Kraus – 12427 Royal Manor
13. Cheryl Orlet – 106 Ambleside Lane
14. Loren Landau – 365 Lyonnais
15. Ken Rotskoff – 260 Prince Towne Drive
16. Barbara Berger – 133 Ladue Pines
17. Marjory Jaffe – 12173 Winrock Drive
18. Robert Fry – 805 Country Manor Lane
19. Gwen Dannenmueller – 381 Hibler Court
20. Audrey Stefanih – 12202 Kingshill Drive

Residents who spoke in favor of this application:

1. George Hansford – 12237 Ladue Road, 12243 Ladue Road, 12249 Ladue Road
2. Brian Thornquist – 245 Kingshill Drive

During the comments from the audience, Mr. David Caldwell, 257 Brooktrail Court, asked a question in regards to the traffic study, and wanted to know if there would be public transportation coming to this area.

There being no further comments, City Attorney, Mr. Carl Lumley, presented the exhibits for the record and the public hearing was closed.

(This ends the Public Hearing; see verbatim transcript for further information)

The Commission decided to defer this topic to the next scheduled meeting, November 5, 2012, pending a report from City's traffic consultant.

Mr. Howard motioned to continue application #12-027, the rezoning of the former Belle Maison, subdivision to "PRD" Planned Residential Development for the Delmar Gardens Creve Coeur Renaissance project, to November 5, 2012, to allow for resolution of issues and preparation of a draft PRD ordinance.

7. WORK AGENDA

None

8. OTHER BUSINESS

A. Planning Division Report

Mr. Langdon stated at the next meeting the application for Delmar Gardens will be returning and there will also be hearing a fence application and a revision for the preliminary plat for Enclave at Bellerive.

B. City Attorney Report

None

9. ADJOURNMENT

There being no further business to come before the Planning and Zoning Commission, upon motion being made and duly seconded, the meeting was adjourned at 9:30 p.m.

Timothy Madden, Chair

Julie Lowery, Recording Secretary



DEPARTMENT OF PUBLIC WORKS STAFF MEMORANDUM

DATE: November 2, 2012

TO: Creve Coeur Planning and Zoning Commission

CC: Paul Langdon, Director of Community Development
Jim Heines, Director of Public Works

FROM: Matt Wohlberg, P.E., City Engineer

SUBJECT: Final Draft Recommendation
Stormwater Master Plan Update

The final draft of the Stormwater Master Plan Update report was provided to the members of the Planning and Zoning Commission for their review at the Commission's meeting on July 16, 2012. City staff returns to discuss the report with the Commission and to seek the Commission's recommendation for approval to the Creve Coeur City Council.

Project Summary and Timeline

The City retained the professional engineering services of Horner & Shifrin, Inc., in the spring of 2011 to evaluate various storm water concerns in an effort to update the City's Stormwater Master Plan. The City's Stormwater Master Plan had last been updated in 1999, and much of the report had been either addressed or become outdated. The work by Horner & Shifrin was to update the master plan to incorporate new concerns, to re-evaluate on-going issues identified in the 1999 report, and to make the master plan easier to navigate.

Field investigations were performed in the fall and winter of 2011. Horner & Shifrin compiled its findings into a preliminary draft report, which was delivered to the City in February 2012. This preliminary draft was reviewed by the City's Stormwater Committee and City staff, and it was a topic of discussion at the Committee's subsequent meetings. Comments from the Stormwater Committee and City staff were incorporated into a final draft of the report, which was delivered to the City in May 2012, at which point copies of the report were distributed to members of the Stormwater Committee and, later, the Planning and Zoning Commission for review and comment.

The final draft of the report was discussed at the Stormwater Committee's meeting on October 11, 2012, where the Committee recommended that the City approve and adopt the report without further revision.

Joint Committee Meeting. Recognizing that interest in the Stormwater Master Plan was not limited to the Stormwater Committee, City staff held a joint committee meeting on August 21, 2012 to discuss the report and the project. Members of the Planning and Zoning Commission, the Finance Committee, the Horticulture, Environment, and Beautification (HEB) Committee, and the Stormwater Committee were invited to attend. The meeting was also open to the public.

City staff received several stormwater-related comments at this meeting, ranging in topic from the report's methodology to financing repairs to the use of rain barrels. These comments are currently under review and will be addressed for inclusion into the report to the City Council.

Project Purpose and Misconceptions

The purpose of the Stormwater Master Plan is twofold. First, the Master Plan serves as an account of the known stormwater issues in Creve Coeur, listing these issues, site assessment notes, and cost estimates for improvements to the sites. The current update to the report included introducing the list of project sites to a geographic information system (GIS) environment so that the various sites can be reviewed on a map. With 48 sites included in the report, the GIS interface will make the inventory of sites easier to use than the same information listed on paper in several large binders.

The Master Plan's second purpose is to provide an objective prioritization methodology that allows for the various sites to be compared effectively. The report adopts the evaluation methodology used by the Metropolitan St. Louis Sewer District (MSD) due to its level of sophistication and ease of use for issues identified in the future. Using MSD's ranking system also allows the City to better communicate the benefit-to-cost ratio of each repair, which will be necessary for future requests for financial assistance to address the identified issues.

A common misconception of the Stormwater Master Plan update is that it is a repackaged form of the recent discussion about requiring stormwater mitigation for residential development. Another is that the report makes a recommendation for a specific order in which the various issues should be addressed or for the allocation of funds for this purpose. The report is or does none of these: the report simply documents the known issues and provides an objective means of prioritizing them for future consideration.

Summary of Findings

The site analysis performed by Horner & Shifrin found that addressing 46 of the 48 sites would total approximately \$3.7 million. (The two remaining sites called for potentially extensive projects, as each involved several homes located within the 100-year floodplain.) The issues can be broken down into the following categories, approximated as follows:

Erosion	\$ 2,556,000	69%
Flooding and Erosion	\$ 567,000	15%
Ponding	\$ 281,000	8%
Infrastructure	\$ 218,000	6%
Flooding only	\$ 61,000	2%

The repair assessments and cost estimates included for each site are preliminary and should be considered as such. In-depth investigations into each site may find that more or less work and/or cost is involved with addressing each site.

Financing Repairs

As summarized above, a significant amount of funding will be necessary to address the various issues included in the Stormwater Master Plan report. The capital improvement plan appears to be the most appropriate mechanism for weighing the cost associated with each site with the various other issues needing attention in the City. The current plan is for the Stormwater Committee to annually evaluate the various sites and make a recommendation for the consideration of the highest-priority sites for funding through the annual capital improvement plan.

Along with the Stormwater Committee's recommendation to the City for funding of stormwater projects, City staff and the Stormwater Committee will make the same request to MSD for each issue. MSD is charged with operating and maintaining the stormwater and sanitary systems throughout Creve Coeur, and the hope is that there will be an opportunity to partner with MSD for the implementation the rehabilitation of some of these issues. In addition, a copy of the Stormwater Master Plan report will be provided to MSD for their information and use.

The possibility or feasibility of other funding mechanisms (e.g. taxes or bond issues) were not evaluated as part of this report.

Recommendation

City staff seeks the Commission's recommendation to the Creve Coeur City Council for the approval of the Storm Water Master Plan Update as written and presented to the Commission.

A sample motion would be as follows:

I move that the Planning and Zoning Commission recommend the (approval / disapproval / conditional approval) of the Storm Water Master Plan Update report to the Creve Coeur City Council, as recommended by the City's Storm Water Committee and City Staff.

The Commission's options are to recommend approval (with or without conditions) or to recommend disapproval to the City Council.

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1.0 INTRODUCTION

The City of Creve Coeur experiences multiple stormwater problems within its boundaries. To benefit its citizens, the City has identified the need to assess the multitude of drainage related problems by updating its last Watershed Plan done in 1999 to develop a new path to implement comprehensive and technically sound solutions to these problems.

Many of the problems stem from increased runoff from development. Changes in land use have a major effect on both the quantity and quality of stormwater runoff. Urbanization, if not properly planned and managed, can dramatically alter the natural hydrology of an area because it increases impervious cover. Impervious cover decreases the amount of rainwater that can naturally infiltrate into the soil and increases the volume and rate of stormwater runoff. These changes lead to more frequent and severe flooding, streambank erosion, and therefore potential damage to public and private property.

One solution that helps mitigate these effects is to enacting ordinances requiring elements of low-impact development (LID). LID is a stormwater management system that works by utilizing the natural processes of the water cycle. LID treatment networks are designed not to exceed the carrying capacity of a site's landscape and can incorporate a number of stormwater best management practices such as rain gardens, vegetated filter strips, bioswales, pervious pavement, and green roofs.

The scope of the Watershed Management Plan Update has been to review the existing Master Plan, collect the available watershed information (including a stormwater questionnaire distributed to citizens in 2010), evaluate known problems, develop appropriate project alternatives to solve them and prioritize the projects in a fair and equitable manner.

1.1 Purpose

The purpose of this report is to develop a current, prioritized master plan that incorporates any concerns from the previous master plan, problem areas identified in the recent stormwater questionnaire, and any other issues brought to the City's attention. In addition, the report will serve as a tool to determine appropriate stormwater funding and help determine which projects receive this funding.

2.0 GENERAL WATERSHED DESCRIPTIONS

The City of Creve Coeur consists of two primary watersheds: Creve Coeur Creek and Deer Creek as illustrated in Figure 2-1. Each is comprised of smaller sub-watersheds. Within the Creve Coeur Creek watershed are: Creve Coeur Creek, Fernridge Creek, Smith Creek, and Maryville Creek. Contained by the Deer Creek Watershed are: Deer Creek Main Branch, Windrush Creek, Monsanto Sunswept, Pebble Creek, Tributary 4, Tributary 5, Black Creek, Hampton Branch, Claytonia Creek, Two Mile Creek, Sebago Drainage, and Shady Grove Creek.

2.1 Creve Coeur Creek

The Creve Coeur Creek Watershed is 16,888 acres in size and is located in west St. Louis County as shown in Figure 2-1. It lies between Dorsett Road to the north, Clarkson Road to the west, Clayton Road to the south, and Interstate 270 to the east. The watershed drains to the northeast with the main branch of Creve Coeur Creek running through Creve Coeur Lake and discharging to the Missouri River.

2.1.1 Terrain

The watershed is composed almost entirely of gently to moderately sloping terrain, with a few areas of steep slopes. In addition, there are significant portions of level ground lying along the main branch of Creve Coeur Creek and its tributaries.

2.1.2 Topography

General topographic data for the Creve Coeur Creek watershed can be obtained from the following USGS 7.5 minute quadrangle maps:

- Creve Coeur
- Chesterfield
- Kirkwood
- Manchester

2.1.3 Soil Types & Properties

Approximately thirty percent of the watershed consists of uplands, which are classified as the Menfro-Windfield-Urban land association by the USDA - SCS. Soils in this classification have the following characteristics:

- Gently sloping to very steep (slopes from 2 to 45 percent)
- Well drained and moderately well drained (Hydrologic class B)

Path: N:\115500\GIS\115500_CreveCoeur_Figure2-1.mxd Date Saved: 3/27/2012 1:16:42 PM

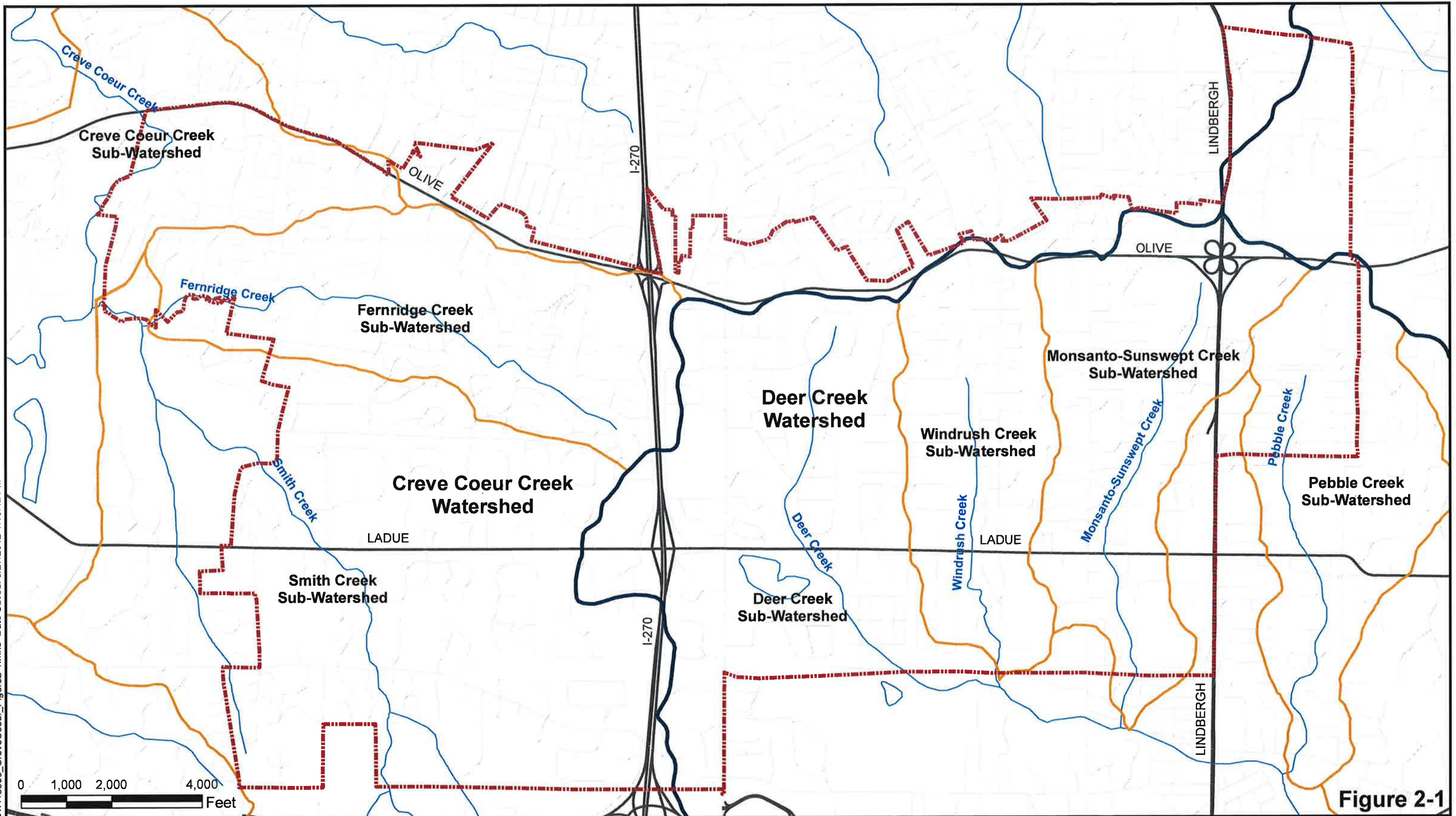


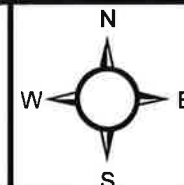
Figure 2-1



- Legend**
- Creve Coeur Boundary
 - Watershed Boundary
 - Sub-Watershed
 - Streams
 - Major
 - Minor

City of Creve Coeur by Watershed

City of Creve Coeur, Missouri



Approximately sixty percent of the watershed is comprised of uplands, terraces and bottom lands, classified as the Urban land-Harvester-Fishpot association, and are defined with the following characteristics:

- Nearly level to moderately steep (slopes from 0 to 20 percent)
- Moderately well drained and somewhat poorly drained (Hydrologic class B and C)

The bottomland found along the main branch of Creve Coeur Creek, classified as the Wilbur-Haymond-Elsah association, comprises less than ten percent of the watershed and is defined with the following characteristics:

- Nearly level to gently sloping (slopes from 0 to 2 percent)
- Moderately well drained to somewhat excessively drained (Hydrologic class B and C)

Additional information about soil hydrologic properties is provided in The United States Department of Agriculture (USDA) - Soil Conservation Service (SCS) Soil Survey of St. Louis and St. Louis County.

2.1.4 Jurisdiction (Area of City w/in Watershed)

Approximately 45% of the City lies within the Creve Coeur Creek Watershed.

2.2 Deer Creek

The Deer Creek watershed is 23,539 acres in size as shown in Figure 2-1. The watershed is located in Central St. Louis County. It lies between Olive Boulevard to the north, I-270 to the west, I-44 and Essex to the south, and Big Bend Road to the east. The watershed drains to the southeast, with the main branch of Deer Creek discharging into River Des Peres. The southwestern portion of the watershed was formerly known as the Two Mile Creek watershed and the northeastern portion was formerly known as the Black Creek watershed.

2.2.1 Terrain

The watershed is comprised almost entirely of sloping terrain with a few areas of flat ground and a few moderate slopes. There are several significant sections of level ground lying along the main branch of Deer Creek. The watershed's drainage network is comprised of a main branch and eleven major tributaries. The average slope of the creek is 19 feet per mile.

2.2.2 Topography

General topographic data for the Deer Creek watershed can be obtained from the following USGS 7.5 minute quadrangle maps:

- Kirkwood
- Webster Groves
- Clayton
- Creve Coeur

2.2.3 Soil Types & Properties

Approximately fifty to sixty percent of the watershed consists of uplands, which are classified as the Menfro-Windfield-Urban land association by the USDA - SCS. Soils in this classification have the following characteristics:

- Gently sloping to very steep (slopes from 2 to 45 percent)
- Well drained and moderately well drained (Hydrologic class B)

The remaining forty to fifty percent of the watershed is comprised of Urban land-Harvester-Fishpot association, and are defined with the following characteristics:

- Nearly level to moderately steep (slopes from 0 to 20 percent)
- Moderately well drained and somewhat poorly drained (Hydrologic class B and C)

Additional information about soil hydrologic properties is provided in The United States Department of Agriculture (USDA) - Soil Conservation Service (SCS) Soil Survey of St. Louis and St. Louis County.

2.2.4 Jurisdiction (Area of City w/in Watershed)

Approximately 55% of the City lies within the Deer Creek Watershed.

3.0 DATA DEVELOPMENT

This section discusses the methodology used to gather information about the current stormwater issues and concerns in the City of Creve Coeur. Data from previous studies was used and current site visits were conducted.

3.1 Previous Studies

The City of Creve Coeur seeks to maintain a current account of stormwater issues and concerns within the City's limits. The City developed a stormwater master plan in 1986 and an update to this plan in 1999. Additional stormwater concerns have been brought to the City's attention through the issuance of a stormwater questionnaire in the fall of 2010. Site locations are outlined in Figure 3-1.

3.1.1 1999 Master Plan

The 1999 Master Plan was developed by distributing a stormwater questionnaire to all City residents. Residents could express a stormwater concern by identifying the location and nature of problem on the questionnaire. Field crews visited the sites to verify the conditions. Of the 385 responses, 294 were deemed problem areas. The 294 responses were grouped together into 100 project areas made up of locations reporting related complaints.

The City has reviewed the 1999 Master Plan and *44 projects* remain a concern as listed in Table 3-1.

3.1.2 2010 Questionnaire

As similarly done for the 1999 Master Plan, a stormwater questionnaire was issued in the fall of 2010 for residents to report current issues.

The result was *33 projects* as listed in Table 3-2.

In some cases, projects from the 2010 questionnaire were related to a similar problem identified in the 1999 Master Plan. If there was a correlation, it was noted in both Table 3-1 and Table 3-2.

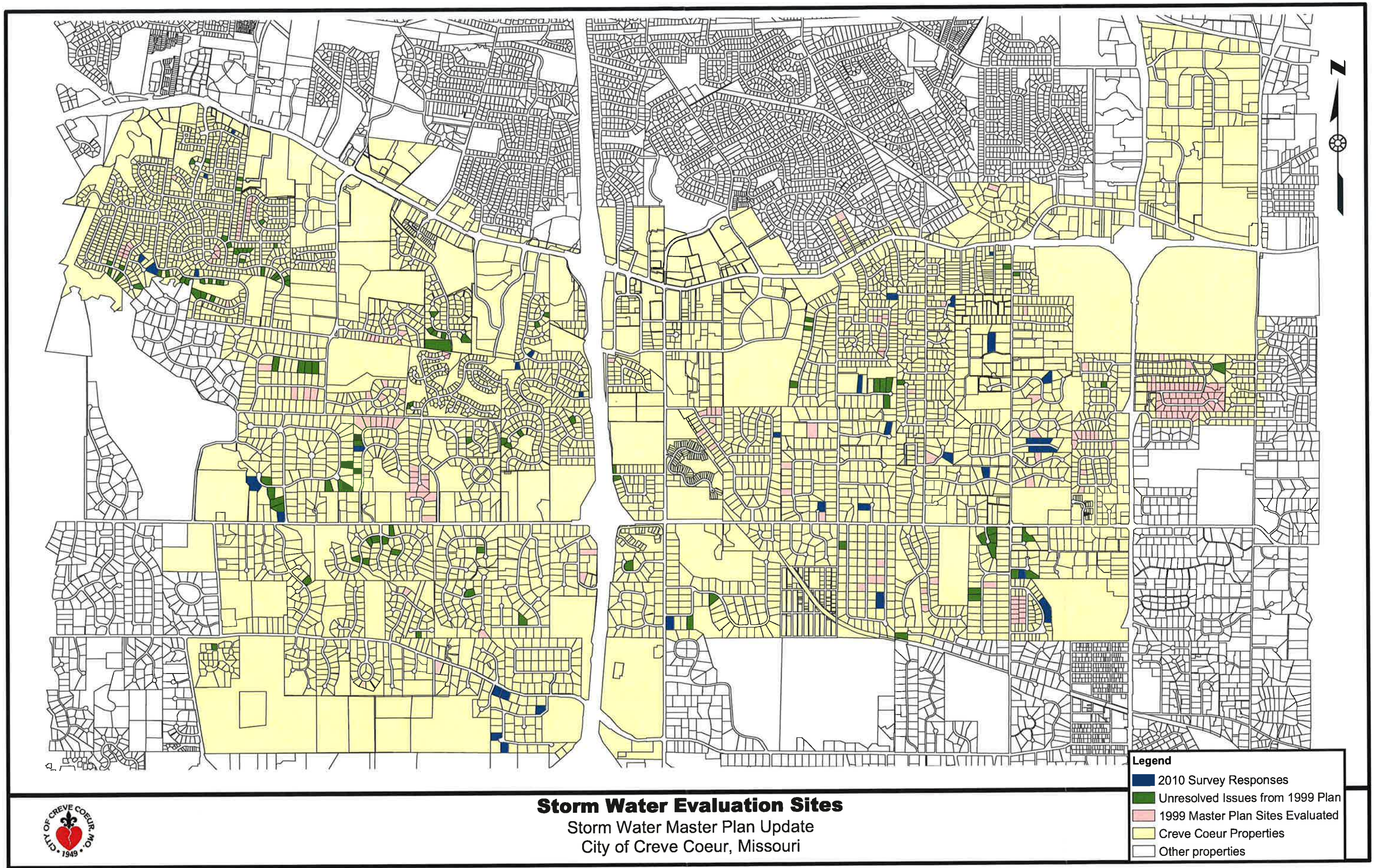


Figure 3-1

**Remaining Concerns from 1999 Master Plan
Table 3-1**

Count	Orig. ID #	Project Name	Issue/Problem	Project Corresponding to 2010 Questionnaire
1	13-1	Beauvais Court	Terraced subdivisions - water entering home	
2	13-4	Fernridge Creek - Mason to D'Artagnan	Creek flooding and erosion - water entering homes	1, 15
3	13-6	Litchford Court	Terraced subdivisions - water entering home	
4	13-9	Chasselle-Chamblee Lane	Creek flooding and erosion - water entering homes	5, 6, 8
5	11-1	Royal Gate-Royal Manor Drive	Damaged or inadequate storm sewers - ponding in street	
6	11-3	North Walling Drive	Inadequate curb, gutter and inlets - ponding in street	
7	11-6	Emerald Green & Emerson Intersection	Inadequate curb, gutter and inlets - ponding in street	
8	11-7	Montauben Drive	Damaged or inadequate storm sewers - ponding in street	
9	7-1	Mosely Acres	Dam failure or overtopping - threatens building	
10	5-1	Winrock Drive	Inadequate curb, gutter and inlets - damaging landscaping	
11	5-3	Ridgecorde Place #485	Creek flooding and erosion - damaging landscaping	
12	5-4	Tealwood North #47	Creek flooding and erosion - damaging driveway retaining wall	
13	5-5	Stratford Ridge Court	Creek flooding and erosion - threatens yards and landscaping	2
14	5-6	Balcon Estates #7	Creek flooding and erosion - damaging landscaping	
15	5-7	Ladue Woods Drive	Terraced subdivisions	
16	5-8	Fernview Drive #1009 and #1020	Creek flooding and erosion - threatens fences	
17	4-2	Broadview Farm #9	Minor yard flooding and erosion - threatens maintained area	
18	4-4	Royal Manor Drive	Creek flooding and erosion - threatens maintained area	
19	4-5	Booth Bay Lane	Creek flooding and erosion - threatens maintained area	
20	4-6	Spoele Acres	Creek flooding and erosion - threatens maintained area	28
21	4-7	Spoele View Court #10667	Creek flooding and erosion - threatens maintained area	
22	4-8	Tarrytown-Lakeshore Drive	Creek flooding and erosion - threatens maintained area	29
23	4-9	Somerton Court	Creek flooding and erosion - threatens maintained area	
24	4-10	Clion and Chamblee Lane	Creek flooding and erosion - threatens maintained area	
25	4-11	Ladue Court Drive	Creek flooding and erosion - threatens maintained area	
26	3-2	Fenway - 900 Block	Creek flooding and erosion - threatens maintained area	
27	3-7	Fairways Circle - 600 Block	Terraced subdivisions - ponding in yards	
28	3-10	Hibler Court	Inadequate drainage swales - ponding in yards	
29	3-20	Countryside View Drive #10671	Terraced subdivisions - ponding in yards	12
30	3-24	Foxbrook Drive	Terraced subdivisions - ponding in yards	
31	3-27	Spoele Road at Ramblewood	Inadequate curb, gutter and inlets	
32	3-30	Sackston Ridge Lane	Inadequate curb, gutter and inlets - ponding in yards	
33	3-32	Conway Homes Circle	Minor yard flooding and erosion - ponding in yards	
34	2-1	Hibler Oaks	Inadequate drainage swales - minor yard erosion	
35	2-4	Villa Coublay Drive	Creek flooding and erosion - erosion in ravine	
36	2-5	Fairways Circle - 500 Block	Creek flooding and erosion - erosion in ravine	
37	1-1	Haverton Drive #812	Damaged or inadequate storm sewers - sinkhole	
38	1-2	Robinview Court	Damaged or inadequate storm sewers - sinkhole	
39	1-3	D'Artagnan Court	Damaged or inadequate storm sewers - sinkhole	
40	1-6	Ladue Estates Dr. #5	Minor yard flooding and erosion - erosion in yard	
41	1-7	Oak Park Drive	Minor yard flooding and erosion - erosion in yard	
42	1-8	Oak Park Court	Inadequate curb, gutter and inlets - ponding in street	
43	0-3	Ambois Drive Sewers	Sewer backups due to high groundwater and leaky joints	
44	0-5	Ramblewood Lane	Sewer backups due to high groundwater and leaky joints	

Concerns from 2010 Questionnaire
Table 3-2

ID No.	Location	Issue/Problem	Project Corresponding to 1999 Master Plan
1	12995 Ambois	Creek flooding threatens residential street	13-4
2	7 Balcon Estates	Creek flooding and erosion	5-6
3	24 Balcon Estates	Creek flooding and erosion	
4	26 Balcon Estates	Creek flooding and erosion	
5	13 Chamblee	Creek flooding and erosion	13-9
6	15 Chamblee	Creek flooding and erosion	13-9
7	12-17 Chaminade	Creek erosion threatens pedestrian bridge	
8	1 Chasselle	Creek flooding and erosion	13-9
9	77 Colonial Hills	Inadequate drainage swales-yard erosion and flooding	
10	12410 Conway Road	Yard ponding	
11	12295 Country Manor	Yard erosion at discharge of storm pipe	
12	10671 Country View	Yard erosion	3-20
13	12970 Ferntop	Creek flooding and erosion	
14	12921 Fernway	Yard ponding and erosion	
15	13119 Gascogne	Creek erosion	13-4
16	11076 Graeser	Inadequate curb, gutter, inlets- yard flooding	
17	12318 Halsgame	Yard erosion	
18	73 Ladue Estates, East	Yard ponding	
19	287 Ladue Lake	Terraced subdivisions-yard erosion and flooding	
20	104 Ladue Meadows	Terraced subdivisions-yard erosion	
21	859 Larkin	Inadequate drainage swales-yard erosion and flooding	
22	3-6 Middlebrook Lane	Creek erosion threatens residential culvert	
23	16 Mosley Acres	Inadequate curb and gutter-yard erosion	
24	121 Mystic Meadows	Terraced subdivisions-yard erosion and flooding	
25	10835 Rondelay Drive	Yard erosion	
26	12121 Royal Valley Drive	Yard erosion	
27	434 Runnymede Drive	Terraced subdivisions-yard flooding	
28	2 Spoede Acres Street	Yard ponding and erosion	4-6
29	11732 Tarrytown	Creek erosion	4-8
30	11205 Tureen Drive	Yard erosion	
31	6 Wedgewood Lane	Yard ponding and erosion	
32	7 Wedgewood Lane	Yard ponding and erosion	
33	6 Windrush Creek, East	Creek erosion	

3.2 Field Reconnaissance

Field crews performed site visits on the 77 problem areas from both the 1999 Master Plan and the 2010 questionnaire. Site observations were photographed and documented to help evaluate each problem description. Property, aerial, and MSD maps were obtained to supplement and substantiate field observations. In addition to site observations, both in person and phone conversations with home owners were employed to gain a better understanding of the issue. Complete field observations are found in standalone Appendix A.

Field crews assessed current site conditions and determined if the problem areas still existed. Projects were combined if the same problem affected multiple properties and if a common solution was possible. Projects that have been resolved were documented and removed from the list.

4.0 DEVELOPMENT AND EVALUATION OF ALTERNATIVES

This section discusses the observations obtained from the site visits and recommends solutions to each current identified problem.

4.1 Introduction

Erosion and flooding problems exist within the City's limits as evident from the 1999 Master Plan and the 2010 questionnaire. In addition to the 77 projects previously identified, three projects have been added since the beginning of field investigations. They include two identified in a Stormwater Committee Meeting from October 2011 and another identified by a home owner encountered during the site visits.

- 10 projects were removed due to home owner indicating there was no issue
- 14 projects are pending to be removed once home owner verification is received
- 8 projects were combined with other projects that had common issue

A total of 48 projects have a current stormwater issue.

4.2 Projects to Remove

After site visit and verification with home owners, a total of 10 projects can be removed from the list of City concerns. Each project is described below.

× 0-5 (1999 Master Plan)

Location: 830 and 833 Spoede Road

Comments: No issue with sewer backups per phone discussion with home owner.

× 0-3 (1999 Master Plan)

Location: 12944 - 13006 Ambois Drive

Comments: No issue with sewer backups per discussion with home owners. MSD has installed new trunk sewer to eliminate sewer backups.

× 1-3 (1999 Master Plan)

Location: 13138, 13143, 13203, 13200 Dartagnan Court

Comments: No issue with sink holes in area per phone discussion with home owners.

× **1-2 (1999 Master Plan)**

Location: 12521, 12529 Robinview Court

Comments: No issue with sink holes in area per phone discussion with home owners.

× **1-1 (1999 Master Plan)**

Location: 812 Haverton Drive

Comments: No issue with sink holes in area per phone discussion with home owner.

× **3-27 (1999 Master Plan)**

Location: 830 and 833 Spoede Road

Comments: No issue with sewer backups or street flooding per phone discussion with home owner.

× **3-24 (1999 Master Plan)**

Location: 432 Foxbrook Drive

Comments: No erosion or flooding issue per discussion with home owner.

× **4-9 (1999 Master Plan)**

Location: 12226, 12206 Sommerton Court

Comments: No erosion or flooding issue per phone discussion with home owners.

× **5-3 (1999 Master Plan)**

Location: 485 Ridgecorde Place

Comments: No erosion or flooding issue per discussion with home owner.

× **13-6 (1999 Master Plan)**

Location: 228 Litchford Court

Comments: Home owner has installed inlet and drainage pipe along retaining wall to control runoff. After a follow-up visit with home owner, it was confirmed that there are no stormwater issues present.

4.3 Projects Pending to Remove

Nine projects appear to have no visible issue and five appear to have issue resolved as observed during site visits. Contact with the home owners of these issues was attempted by phone and during site visit, however all residents were unavailable. Further verifying is required to ensure no stormwater concern exists. Each project is described in the following section.

4.3.1 No Visible Issue

This section lists all projects that had no apparent issue at the time of field investigation.

× **1-7 (1999 Master Plan)**

Location: 33, 34 Oak Park Drive

Comments: Runoff from street and yards drain to grate inlet located on west and east side of Oak Park Drive. Street has been resurfaced and there appears to be no areas for flooding to occur.

× **3-30 (1999 Master Plan)**

Location: 11967 Sackston Ridge Lane

Comments: No visible flooding or erosion observed at culdesac. Street appears to have adequate curb and gutter.

× **4-2 (1999 Master Plan)**

Location: 9 Broadview Farm Drive

Comments: Backyard does not appear threatened by creek flooding or street runoff.

× **11-7 (1999 Master Plan)**

Location: Intersection of Montauban and Nimes

Comments: No visible yard damage observed in area. Street appears to have adequate slopes, curbs, and gutters. Per discussion with home owner of 742 Montauban, there is no street flooding present. Could not reach other home owners in the area.

× **11-6 (1999 Master Plan)**

Location: 11982, 11995 Emerald Green Drive

Comments: No evidence of flooding visible.

× **11-3 (1999 Master Plan)**

Location: 21, 22, 23, 27 North Walling Drive

Comments: Street appears to have adequate slope to drain. No sink holes observed along storm line.

× **11-1 (1999 Master Plan)**

Location: 12459, 12466, 12518 Royal Manor Drive/ 111 Royal Gate/ 131 Petite Royal

Comments: Street appears to have sufficient inlets and slopes. Home owner of 12518 Royal Manor had no knowledge of current flooding issues in area. Could not reach other home owners in the area.

× **10 (2010 Questionnaire)**

Location: 12410 Conway Road

Comments: Minimal tributary area appears to be contributing to site runoff. Home appears elevated and flooding does not seem possible. Could not reach home owner to discuss.

× **Extra Project Identified During Stormwater Committee Meeting**

Location: 12535, 12542, 12550 Mason Forest Drive

Comments: There appears to be adequate inlets and a cross-pavement grated trench drain to collect runoff. Steep sloping street and yards sloping to street may cause large amount of water on pavement during a storm.

4.3.2 Issue Appears Resolved

This section lists all projects where the issue appears to have been resolved.

× **3-32 (1999 Master Plan)**

Location: 12534 Conway Holmes Circle

Comments: Erosion in southwest corner of yard appears to be controlled by the rip rap placed along hillside and around inlet.

× **5-6 (1999 Master Plan) / 2 (2010 Questionnaire)**

Location: 7 Balcon Estates

Comments: Grouted rip rap has been placed upstream of bridge and standard rip rap has been placed downstream of bridge. Creek banks appear stable. No evidence of flooding or erosion observed.

× **5-5 (1999 Master Plan)**

Location: 12402, 12414, 12420, 12443 Stratford Ridge Court / 12380 Whitworth Terrace/ 665 Questover Lane

Comments: Grouted rip rap has been constructed along creek banks behind Stratford Ridge Court. 12443 Stratford Ridge is not impacted by creek and has no drainage issue visible. 12380 Whitworth Terrace has visible creek erosion, but rip rap has been placed to mitigate issue.

× **5-1 (1999 Master Plan)**

Location: 12248, 12283, 12290 Winrock Drive

Comments: New curb has been installed at 12283 and 12290 which appears adequate to control street runoff.

4.4 Remaining Projects

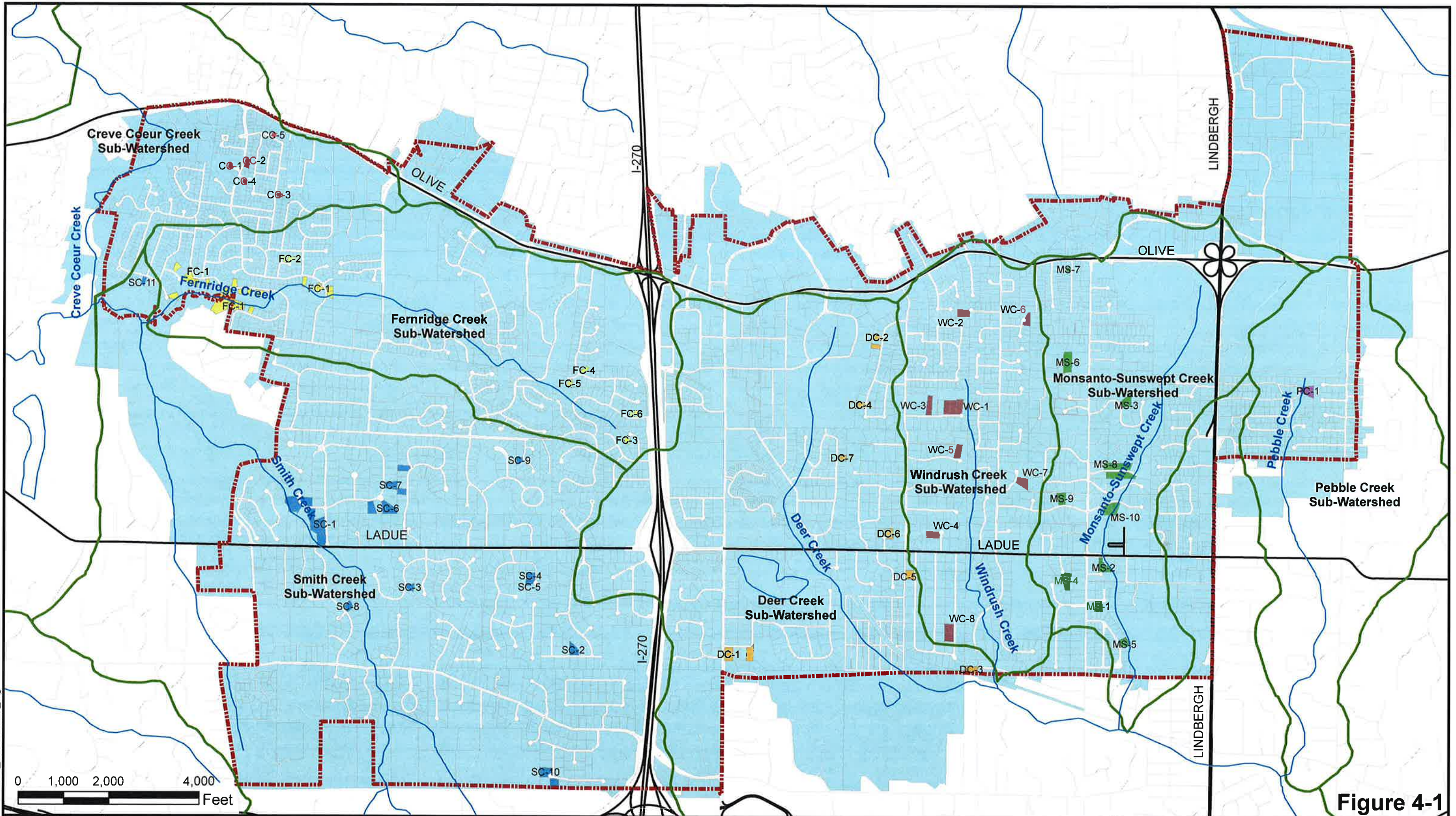
This section discusses are current problem areas within the City of Creve Coeur assorted by watershed.

4.4.1 Problem Designation

Each current problem has been given a new project number based on the watershed in which the problem area is located. A letter prefix designates the problem watershed as follows:

- CC: Creve Coeur Creek Main Branch
- SC: Smith Creek
- FC: Fernridge Creek
- DC: Deer Creek Main Branch
- WC: Windrush Creek
- MS: Monsanto Sunswept Creek
- PC: Pebble Creek

The watersheds and problem areas are illustrated in Figure 4-1. Where feasible, some problem areas have been combined into a single project when a solution is mutual.

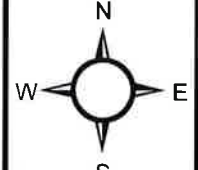




Legend

CC	SC	Creve Coeur Boundary	Streams
DC	PC	Sub-Watershed	Minor Roads
FC	WC	Creve Coeur Parcels	Major Roads
MS			

Problem Areas by Watershed City of Creve Coeur, Missouri



4.4.2 Alternative Analysis

Rehab and repair alternatives were explored for each problem site. Each alternative met the applicable requirements of the current Metropolitan St. Louis Sewer District (MSD) and Missouri Department of Natural Resources (DNR) guidelines. Two solutions were developed for each site unless otherwise noted. The preferred solution is the most effective option that best corrects the problem. Where both solutions were equally effective, the preferred solution was decided by lowest cost. In some cases it was suggested that a watershed wide approach be taken to analyze the issues to recommend a better solution.

For residential yard erosion and flooding, alternatives varied from reconstructing natural swales to constructing new storm systems. For creek erosion, alternatives included providing a creek biostabilization method or constructing vegetated gabions. Biostabilization refers to the use of soil blankets and plantings. Vegetated gabions refer to gabion baskets that incorporate vegetation. For creek flooding, alternatives included constructing berms and planting vegetation along the banks.

4.4.3 Descriptions

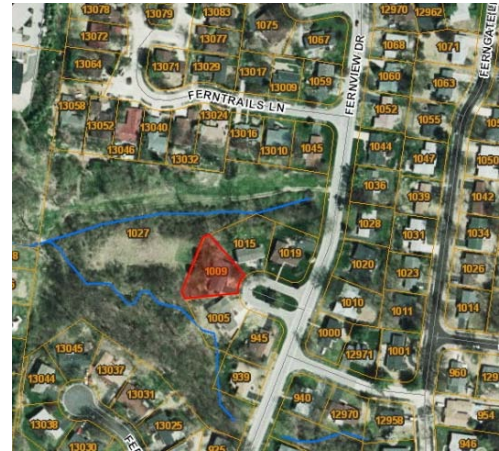
The following lists all problem areas that lie within the City of Creve Coeur. Location, problem description, and solutions are provided for each. The original problem designations (from 1999 Master Plan and/or 2010 Questionnaire) are cited for reference. A complete site assessment for each can be found in Appendix A and a detailed cost estimate is provided in Appendix D.

➤ **CC-1 - Fernview Drive #1009**

LOCATION: Fernview Drive is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 5-8 (1999 Master Plan)

PROBLEM DESCRIPTION: Erosion at discharge of pipe at north section of backyard. Discharge of pipe was covered with yard waste and debris.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet.

COST ESTIMATE: \$52,000

ALTERNATE SOLUTION: Place rip rap at end of discharge of pipe and along drainage path.

COST ESTIMATE: \$35,000

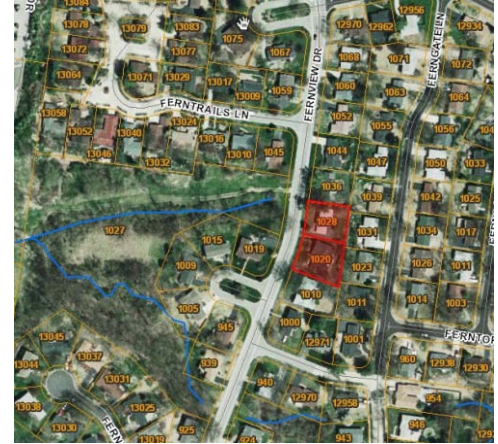


➤ **CC-2 - Fernview Drive #1020, 1028**

LOCATION: Fernview Drive is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 5-8 (1999 Master Plan)

PROBLEM DESCRIPTION: Yard erosion observed in backyard of lot 1020 and 1028 Fernview due to runoff from homes behind on Ferngate Lane. Resident at lot 1028 has placed rocks along drainage path in an attempt to divert flow.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
TOTAL				20

PREFERRED SOLUTION: Construct grass swale using turf reinforcement mat.

COST ESTIMATE: \$39,000

ALTERNATE SOLUTION: Construct a new storm system in place of the existing grass swale to collect surface runoff and connect to existing storm sewer. The system would include 1 area inlet and 180' of 12" RCP.

COST ESTIMATE: \$52,000



➤ **CC-3 - Fernway Lane #928**

LOCATION: Fernway Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 3-2 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had two addresses affected. Per phone discussion with home owner at 952 Fernway Lane, yard has been regraded and an area inlet has been constructed to prevent ponding. Ponding still occurs at bottom of hillside of lot 928. Runoff is contributed from properties to the east. There is an area inlet located in backyard, but is not functioning properly because the sides of inlet have become backfilled. Home owner explained that water ponds in backyard and threatens patio.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
Infrequent Structural Flooding-miscellaneous structure-patio	7	Field Investigation	1	7
TOTAL				17

PREFERRED SOLUTION: Clear openings of inlet and regrade backyard to allow runoff to be collected at area inlet.

COST ESTIMATE: \$63,000

ALTERNATE SOLUTION: Construct a double area inlet in place of existing inlet. Regrade yard as required.

COST ESTIMATE: \$68,000

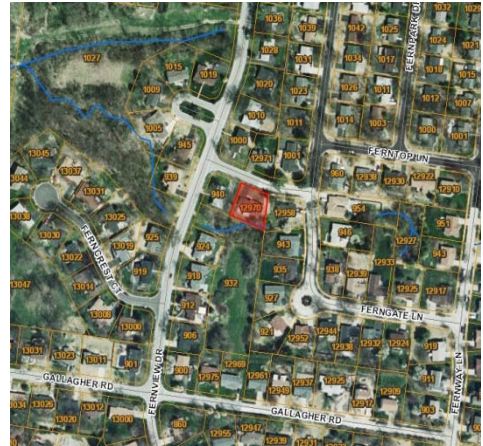


➤ **CC-4 - Ferntop Lane #12970**

LOCATION: Ferntop Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13 (2010 Questionnaire)

PROBLEM DESCRIPTION: Creek erosion observed behind backyard. The most noticeable signs of erosion are along banks on south side. Creek banks are relatively shallow and are susceptible to flooding. There is fair amount of vegetation along creek. Pockets of standing water were present.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			20	

PREFERRED SOLUTION: Place rip rap along channel to prevent further erosion. Build up creek banks to mitigate flooding.

COST ESTIMATE: \$71,000

ALTERNATE SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings. Build up creek banks to mitigate flooding.

COST ESTIMATE: \$61,000

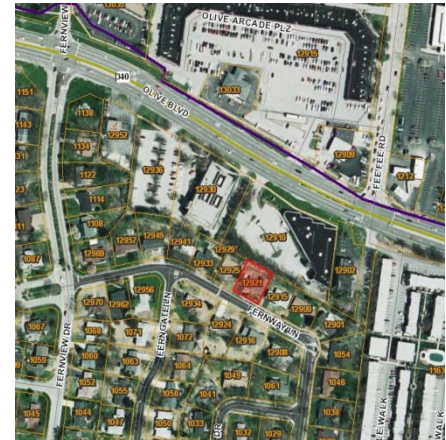


➤ **CC-5 - Fernway Lane #12921**

LOCATION: Fernway Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 14 (2010 Questionnaire)

PROBLEM DESCRIPTION: Existing swale has been disturbed. Runoff from upstream is rotting away wood retaining wall. Backyard has potential areas to pond if runoff flows over or through wall. There is an area inlet as well as curb along parking lot behind home which appears to control runoff.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Reconstruct swale to existing condition by regrading yard. Resident's retaining wall will need to be removed.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and connect to existing system. The system would include 1 area inlet and 160' of 12" RCP. Resident's retaining wall will need to be removed.

COST ESTIMATE: \$63,000



➤ **SC-1 - Chasselle Lane # 1,3,5 and Chamblee Lane #9,13,15,25**

LOCATION: Chasselle and Chamblee are residential streets west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13-9 (1999 Master Plan) / 5, 6, 8 (2010 Questionnaire)

PROBLEM DESCRIPTION: Severe creek erosion observed. There were several fallen tree limbs and trunks. Utility poles are threatened. Creek has been rehabbed with gabion walls and rip rap at erosion locations. However, many areas along the creek remain affected by localized erosion. Backyards along creek have been disturbed by construction activity of a new sanitary sewer line so it was difficult to find evidence of flooding by field observation. Resident at 1 Chasselle has not experienced any issues within last few years, but no changes were made since the widespread flooding of August 1996. All homes along creek, with exception of lot 1, are distant from creek.



PREFERRED SOLUTION (Erosion): Place rip rap at locations along creek affected by erosion.

PREFERRED SOLUTION* (Flooding): Construct an earth berm to mitigate flooding issues.

* Chamblee Ct. Flooding along Smith Creek has no “preferred solution” *per se*.

The solutions examined in the MSD Stormwater System Master Improvement Plan for Creve Coeur Watershed included methods to prevent flooding by increasing stream capacity, and were projected to cost over \$3.4 M, and to floodproof individual homes at a combined cost of approximately \$335K at the time of the Master Plan (ca 1998). The creek improvements would require additional improvements to the Mason Road bridge, which belongs to St. Louis County (and as of 2012 is still only in the planning stages). Individual home floodproofing would have significant effects on aesthetics and accessibility for the homeowners.

In the summer of 1999, the City staff and the Stormwater Committee were asked to look into possible solutions to flooding of homes between Chamblee Lane and Smith Creek.

An alternate was considered by the committee, that of a berm constructed to serve as a levee to protect these homes from up to a 100-year flood. The berm would vary from one foot to three feet high, with the greatest portion about 18 inches high. This height would match the 100-year flood elevation but without freeboard; therefore the nominal level of protection would be approximately 50-year flood frequency. The earth berm would be sloped at a maximum of 3:1 (horizontal to vertical), and have approximately a four-foot wide top. This would require a total width of 10 to 22 feet wide, and would be grass covered or planted with shrubs. A variation using a low floodwall would require very little width, constructed much the same as a concrete retaining wall, and could be faced with brick or other material for aesthetics. Cost for a 4-foot wall (without allowance for facing) would range from \$100 to \$200 per lineal foot.

Stormwater inlets and drainpipes would be required to collect rainfall on the protected yards and convey it under the berm or wall, into the creek, using one-way valves to prevent high water in the creek from flowing backwards into the yards.

An on-site meeting was held in September 1st with homeowners in the affected area, to describe the above approach to flood prevention and get their impressions, objections and opinions. In general the response was favorable. Some homeowners wanted to know if the proposal would work without 100% participation. The answer is that while it could be made to work, it would be more expensive on a per-house basis, and it might be impractical for houses at certain locations. There were concerns with aesthetics, and the amount of space that would either be lost to or hidden by the berm. They wanted see the actual location of the berm to have a better idea of its effects on their property.

At the subsequent stormwater committee meeting it was decided to conduct a preliminary investigation of the berm alignment and design. The city engaged a firm to perform an on-ground elevation survey which would locate and mark (flag in field) the floodway, ground and house elevations, and the proposed location, height and width of the berm (or where a berm would exceed 3' high also show an alternate floodwall for planning purposes.

Another meeting was held with residents after the survey and field layout was completed. After seeing the height and width of the proposed facility in place, residents decided that they did not want it in their yards, and the issue was not advanced any further. It is unlikely that the flood protection will be pursued again.

Floodproofing of the individual homes is doable and could prevent a repeat of the damage incurred in 1996. The issue that remains is determination of what, if any, degree of participation there would be from the city. There is a logical reluctance to spend public funds on private property. However if the city does at times pay for channel and bank protection with the acknowledgment that such projects serve primarily to protect homes from flooding, then it maybe be to the city's fiscal advantage to participate in individual floodproofing at far less cost than expensive channel improvements. Unlike channel and bank improvements that require easements and 100% participation by property owners, individual owners could opt-in or –out of such a program.

Refer to Appendix B for past references in regards to this problem area.



➤ **SC-2 - Ladue Woods Drive #12229**

LOCATION: Ladue Woods is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 5-7 (1999 Master Plan)

PROBLEM DESCRIPTION: Runoff from homes on Ladue Oaks Drive causing yard erosion in backyard. Original swale has been disturbed by subsequent development. Silt fence and undersized drain has been installed. Home owner experiences no flooding into house, however driveway has been replaced to due runoff damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
Infrequent Structural Flooding-miscellaneous structures (pool)	7	Field Investigation	1	7
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	27

PREFERRED SOLUTION: Construct a new storm system to collect surface runoff and connect to existing storm sewer. The system would include 1 area inlet, 230' of 12" RCP, and 135' of 15" RCP.

COST ESTIMATE: \$87,000

ALTERNATE SOLUTION: Reestablish existing grass swale to intercept runoff and route to curb at Ladue Woods Drive. Install turf reinforcement mat to prevent erosion and regrade yard as needed.

COST ESTIMATE: \$59,000

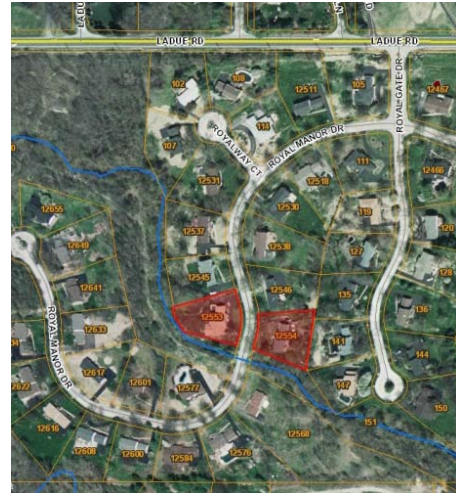


➤ **SC-3 - Royal Manor #12554**

LOCATION: Royal Manor is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-4 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had two addresses affected. Per observation and discussion with home owner at 12553 Royal Manor Drive, creek has been rehabbed with rip rap and vegetation. Area is well maintained. Creek located along east side of lot 12554 has erosion at banks. Resident's yard is being loss. Honeysuckle is prevalent along creek banks.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL				10

PREFERRED SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings at 12554 Royal Manor. Clear all honeysuckle.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Construct rip rap along creek bank to prevent further erosion. Clear all honeysuckle.

COST ESTIMATE: \$43,000

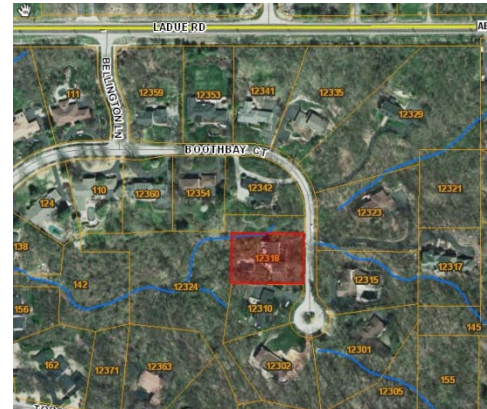


➤ **SC-4 - Booth Bay Lane #12318**

LOCATION: Booth Bay is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion at discharge of 18" RCP. There is a small section of concrete flume downstream of discharge pipe, however it only extends approximately 25'.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct vegetated gabions to prevent further erosion.

COST ESTIMATE: \$104,000

ALTERNATE SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$33,000

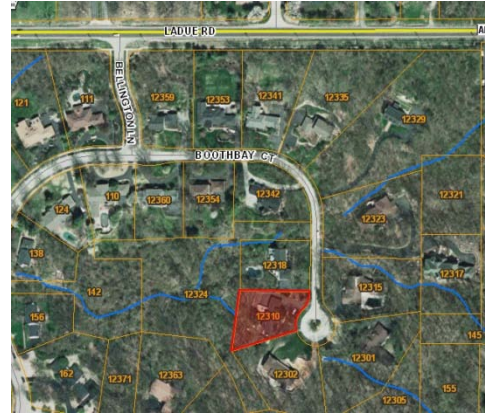


➤ **SC-5 - Booth Bay Lane #12310**

LOCATION: Booth Bay is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Gully erosion present in backyard. Resident reported that he has seen storm manhole lid (MSD 1804-074D) blown off. Resident also reported that street flooding occurs in culdesac.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Infrequent Roadway Flooding-residential	2	Field Investigation	1	2
			TOTAL	12

PREFERRED SOLUTION: Replace existing storm manhole with an area inlet and increase size of discharge pipe from 12" to 24". Further analysis is recommended to determine if storm sewer has sufficient capacity to prevent street flooding, however this is beyond the scope of work.

COST ESTIMATE: \$68,000

ALTERNATE SOLUTION: Improve existing swale using turf reinforcement mat and plant vegetation along swale. This solution corrects erosion issues, but further analysis is still needed to determine cause of street flooding.

COST ESTIMATE: \$41,000



➤ **SC-6 - Chamblee Lane #606, 622**

LOCATION: Chamblee Lane is a residential street west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 4-10 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion observed in backyards of Chamblee Lane. Tree limbs and trunks have been exposed. Resident's homes are greater than 100' from creek.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the creek banks and prevent further erosion.

COST ESTIMATE: \$265,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$143,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **SC-7 - Clion Lane #212 & Ladue Lake Drive #225, 287**

LOCATION: Clion and Ladue Lake are residential streets west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 4-10 (1999 Master Plan) / 19 (2010 Questionnaire)

PROBLEM DESCRIPTION: Gully erosion observed along grass swale in backyards of 212 Clion and 225, 287 Ladue Lake. Resident of 287 Ladue Lake explained that water runs like a creek through backyard and will pond in spots.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	3	30
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				40

PREFERRED SOLUTION: Improve existing swale using turf reinforcement mat. At 287 Ladue Lake, regrade yard and plant vegetation to prevent ponding.

COST ESTIMATE: \$58,000

ALTERNATE SOLUTION: Construct a new storm system in place of the existing grass swale to collect surface runoff and discharge to nearby creek. The system would include 3 area inlets, 390' of 15" RCP, and 600' of 18" RCP.

COST ESTIMATE: \$208,000



➤ **SC-8 - Laduemont Drive #240**

LOCATION: Laduemont Drive is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 4-11 (1999 Master Plan)

PROBLEM DESCRIPTION: Severe erosion at creek located in north section of backyard. A storm pipe discharges at this location, forming the start of creek. Although a part resident's backyard is being eroded, there is no threat to home or pool.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	20

PREFERRED SOLUTION: Place rip rap at end of discharge pipe and along drainage path.

COST ESTIMATE: \$40,000

ALTERNATE SOLUTION: Construct reno mattress at end of discharge pipe and extend along drainage path.

COST ESTIMATE: \$41,000

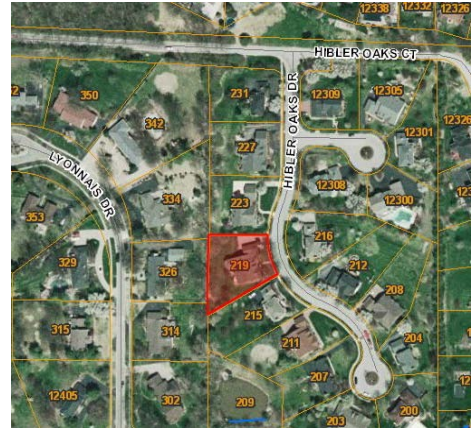


➤ **SC-9 - Hibler Oaks #219**

LOCATION: Hibler Oaks is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 2-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Minor erosion observed in backyard. Tree roots have been exposed from erosion. Tributary area upstream has steep slopes. Yard has been recently seeded along drainage path.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct an area inlet at the property line of 219 and 223 Hibler Oaks to intercept runoff. The area inlet would then be connected to the existing MSD inlet using 190' of 15" RCP.

COST ESTIMATE: \$58,000

ALTERNATE SOLUTION: Reconstruct grass swale using a turf reinforced mat.

COST ESTIMATE: \$44,000



➤ **SC-10 - Balcon Estates #24,26**

LOCATION: Balcon Estates is a residential street west of Interstate 270 between Ladue and Interstate 64/40.

ORIGINAL ID: 3, 4 (2010 Questionnaire)

PROBLEM DESCRIPTION: 24 Balcon Estates- There is severe creek erosion at banks. Erosion is threatening yard, but not house. There is a gabion wall downstream of bridge which appears to have been washed away. There is no erosion protection available at banks.



26 Balcon Estates- Gabion wall has been installed along creek banks. There is an upstream section of creek with no gabion walls. This section has heavy erosion and trees uprooted. In backyard, runoff collects from hillside and ponding occurs. Resident has built temporary ditch to collect this runoff and convey to creek. Resident explained that creek reaches high water levels causing flooding of bridge and property. History and more info on issues are available from home owner.

**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Roadway Flooding-residential street	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				40

PREFERRED SOLUTION: Construct vegetated gabion walls upstream and downstream of existing gabion walls where erosion occurs. Construct swale with French drain to collect runoff in backyard and route to creek.

COST ESTIMATE: \$123,000

ALTERNATE SOLUTION: It is recommended to conduct a watershed analysis to better understand flow rates and volumes passing through creek.

*These solutions are spot repairs and do not resolve creek flooding. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **SC-11 - Dartagnan Court #13200**

LOCATION: Dartagnan Court is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: N/A (Added based on discussion with home owner)

PROBLEM DESCRIPTION: Per phone discussion with home owner, there is erosion at end of discharge pipe which is located on hillside. Dirt has been washed away from under pipe. Issue has been reported to MSD, but not the City of Creve Coeur



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Place rip rap at end of discharge of pipe and along drainage path.

COST ESTIMATE: \$42,000

ALTERNATE SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet.

COST ESTIMATE: \$36,000

➤ **FC-1 - Fernridge Creek between Dartagnan Court and Bellerive Estates Drive**

LOCATION: This reach of Fernridge Creek runs through a residential area near Ambois Drive.



ORIGINAL ID: 13-4 (1999 Master Plan) / 1, 15 (2010 Questionnaire)

PROBLEM DESCRIPTION: Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.

PREFERRED SOLUTION (Erosion): Construct vegetated gabions along the property banks affected by erosion.

PREFERRED SOLUTION* (Flooding):

* Fernridge Creek Flooding along Ambois Drive has no “preferred solution” *per se*.

A storm event that occurred in that location on August 23rd, 1996 flooded approximately 34 homes. The actual flooding was caused by a combination of circumstances. Following the entry of surface floodwater through basement windows and flooding basements (many of which were finished as recreation rooms etc.) the water in those basements with depths of up to 6’ entered floor drains and laundry drains, pressurizing the sanitary trunk and emerging into basements of homes that did not have openings below the floodwater elevation. In addition to the water entering the trunk sewer in that way, much apparently infiltrated through cracks or bad joints in the aging trunk sewer. In the years subsequent to the flood, MSD replaced the trunk sewer; that has likely reduced the chances of infiltration but there remains the issue of surface flooding. The “footprint” of the flood very closely followed the floodplain that is depicted on the effective Flood Insurance Rate Map (FIRM) for the area.

The solutions examined in the MSD Stormwater System Master Improvement Plan (SSMIP) for Creve Coeur Watershed included methods to prevent flooding by increasing stream capacity and to construct a major detention basin at the northwest quadrant of Mason Road and Mason Manor Drive. The costs of the proposed solutions were respectively estimated at that time (ca 1998) as \$4,611,000 and \$1,614,000. Additional studies as found in Appendix C were performed for the City of Creve Coeur following the SSMIP, but in all cases the remedies are extremely expensive.

While the cost to reduce the flood elevation is likely to remain prohibitive, floodproofing individual homes remains a alternative that may be viable.

Floodproofing of the individual homes is doable and could prevent a repeat of the damage incurred in 1996. The issue that remains is determination of what, if any, degree of participation there would be from the city. There is a logical reluctance to spend public funds on private property. However if the city does at times pay for channel and bank protection with the acknowledgment that such projects serve primarily to protect homes from flooding, then it maybe be to the city's fiscal advantage to participate in individual floodproofing at far less cost than expensive channel improvements. Unlike channel and bank improvements that require easements and 100% participation by property owners, individual owners could opt-in or –out of such a program.

Refer to Appendix C for past references in regards to this problem area.

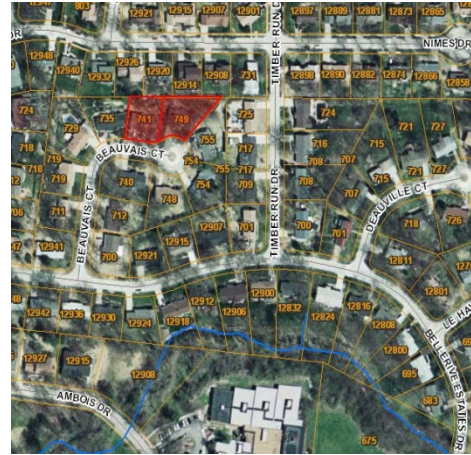


➤ **FC-2 - Beauvais Court #741, 749**

LOCATION: Beauvais Court is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 13-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Original problem had five addresses affected. Per discussion and observation, Lot 735 has a new swale and area inlet constructed to collect runoff. Lot 712 and 729 have no current stormwater issue per discussion with home owners. Runoff from Nimes Drive is flooding and eroding backyards of 741 and 749. Lot 741 has greatest concern due to flooding endangering house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
Infrequent Structural Flooding-habitable first floor	45	Field Investigation	1	45
			TOTAL	85

PREFERRED SOLUTION: Construct a berm and area inlet to collect runoff and connect to nearby storm sewer with 200' of 12" RCP. Restore existing landscaping.

COST ESTIMATE: \$80,000

ALTERNATE SOLUTION: Construct a berm and swale to collect runoff and route to nearby storm sewer. Restore existing landscaping.

COST ESTIMATE: \$55,000

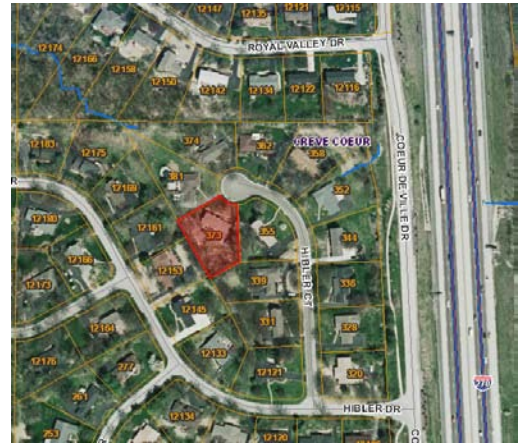


➤ **FC-3 - Hibler Court #373**

LOCATION: Hibler Court is a residential street west of Interstate 270 between Ladue and Olive.

ORIGINAL ID: 3-10 (1999 Master Plan)

PROBLEM DESCRIPTION: Concrete flume does not properly control runoff from neighboring subdivision. Flume was clogged with leaves. Home owner has placed rocks on side of flume as a barrier when water exceeds flume. Filter fabric placed in corner of yard to prevent further washout of yard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			20	

PREFERRED SOLUTION: Construct an area inlet near the beginning of each concrete flume to reduce the flow in each flume. A berm would be constructed around inlet to contain runoff to either inlet or flume.

COST ESTIMATE: \$51,000

ALTERNATE SOLUTION: Construct a berm along entire concrete flume to control runoff.

COST ESTIMATE: \$44,000



➤ **FC-4 - Country Manor Lane #12295**

LOCATION: Country Manor Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 11 (2010 Questionnaire)

PROBLEM DESCRIPTION: Significant erosion at end of discharge pipe. Resident has placed rocks and leaves in an attempt to mitigate issue. Erosion threatens nearby utility pole.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct reno mattress at end of discharge pipe to allow for dissipation of energy at outlet. Place heavy revetment at base of utility pole for protection.

COST ESTIMATE: \$49,000

ALTERNATE SOLUTION: Place rip rap at end of discharge of pipe and along drainage path. Place heavy revetment at base of utility pole for protection.

COST ESTIMATE: \$42,000



➤ **FC-5 - Halsgame Lane #12318**

LOCATION: Halsgame Lane is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 17 (2010 Questionnaire)

PROBLEM DESCRIPTION: Minimal erosion observed along backyard fence line. Site was mostly covered in leaves and debris. Most noticeable yard erosion was evident in southwest corner of yard. Erosion does not threaten house or any structure.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

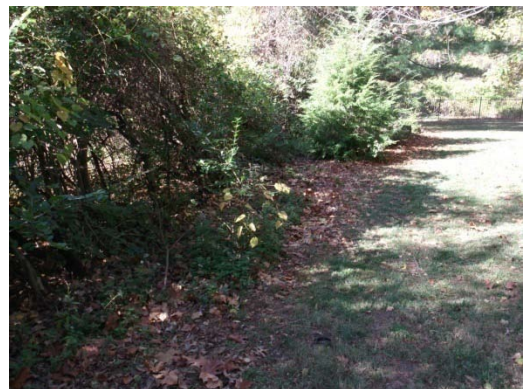
Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Reconstruct grass swale with turf reinforcement mat and route to creek.

COST ESTIMATE: \$42,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and discharge to nearby creek. The system would include 1 area inlet and 260' of 18" RCP.

COST ESTIMATE: \$75,000

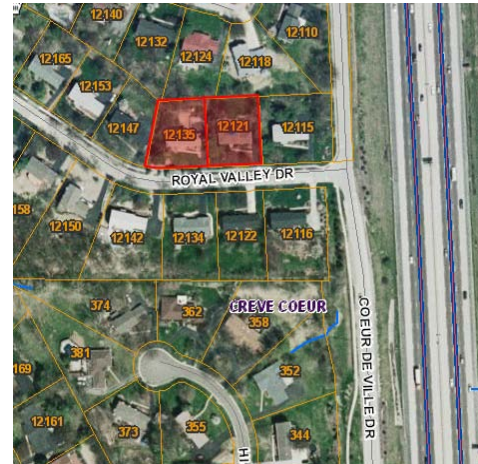


➤ **FC-6 - Royal Valley Drive #12121, 12135**

LOCATION: Royal Valley is a residential street west of Interstate 270 between Olive and Ladue.

ORIGINAL ID: 26 (2010 Questionnaire)

PROBLEM DESCRIPTION: Rill erosion observed in backyard of 12121 Royal Valley. Yard has eroded most near fence line on west side of property. Surrounding tributary area appears relatively flat. Resident has place railroad ties to mitigate erosion. Backyard of lot 12135 has also been affected by runoff causing yard damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Reconstruct grass swale with turf reinforcement mat to prevent erosion.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Construct a new storm system to collect surface runoff and connect to existing storm sewer. The system would include 3 area inlets and 520' of 12" RCP.

COST ESTIMATE: \$117,000



➤ **DC-1 - Tarrytown Drive #11732, 11700**

LOCATION: Tarrytown is a residential street east of New Ballas Road between Ladue and Interstate 64/40.

ORIGINAL ID: 4-8 (1999 Master Plan) / 29 (2010 Questionnaire)

PROBLEM DESCRIPTION: Original problem had three addresses affected. Per discussion and observation at 11600 Lakeshore Drive, no stormwater issue present. Evidence of severe creek erosion behind backyard fence of 11732 Tarrytown. Tree branches and other yard waste have been placed on the banks to prevent further creek erosion. Flooding appears to be main concern at 11700 Tarrytown. Resident explained that creek floods upstream and downstream of culvert. Water ponds causing a potential health issue. Resident has planted vegetation in an attempt to mitigate issue.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
TOTAL				40

PREFERRED SOLUTION: Clear downstream area of culvert located at 11700 Tarrytown. Regrade creek bottom to ensure adequate slope. Construct heavy revetment 20' upstream and downstream of culvert. Provide a MSD creek biostabilization method consisting of a soil blanket and plantings at 11732 Tarrytown.

COST ESTIMATE: \$56,000

ALTERNATE SOLUTION: It is recommended to conduct a watershed analysis to better understand flow rates and volumes passing through creek.

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **DC-2 - Fairways Circle #631, 647**

LOCATION: Fairways Circle is a residential street east of New Ballas Road between Olive and Ladue.

ORIGINAL ID: 3-7 (1999 Master Plan)

PROBLEM DESCRIPTION: The original problem had three addresses affected. Per discussion and observation of 639 Fairways Circle, a French drain has been installed in backyard to mitigate runoff. Issues still present at 631 and 647 Fairways Circle. Runoff from hillside behind commercial properties drains to backyards where it ponds and causes yard erosion. Hillside has steep slope. Embankment at top of hill controls runoff from parking lot. Home owner at lot 647 explained that backyard runs full of water during a storm event, but has not experienced house flooding. Home owner of lot 631 has placed rock along drainage path to mitigate erosion damage.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
			TOTAL	40

PREFERRED SOLUTION: Construct an area inlet in the backyard of both lot 631 and 647. The area inlets would be routed to the existing curb inlet located at lot 631. Pipe required includes 250' of 12" RCP and 130' of 15" RCP. An additional manhole may be required between the two inlets to avoid an in ground pool.

COST ESTIMATE: \$92,000

ALTERNATE SOLUTION: Construct an area inlet in the backyard of both lot 631 and 647 that are not interconnected. Each area inlet would be connected to the existing storm sewer located along Fairways Circle. System would include 2 area inlets, 260' of 12" RCP, and possible addition of a new curb inlet.



COST ESTIMATE: \$71,000

➤ **DC-3 - Villa Coublay Drive #60**

LOCATION: Villa Coublay Drive is a residential street west of Spode Road between Ladue and Interstate 64/40.

ORIGINAL ID: 2-4 (1999 Master Plan)

PROBLEM DESCRIPTION: Significant creek erosion observed along old railroad right-of-way. Backyard surface elevation of lot 60 is approximately 25' above the creek.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the tall, steep banks and prevent further erosion.

COST ESTIMATE: \$491,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$267,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **DC-4 - Fairways Circle #527**

LOCATION: Fairways Circle is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 2-5 (1999 Master Plan)

PROBLEM DESCRIPTION: Erosion has occurred at top of bank from runoff from backyard. The eroded surface has been filled in with yard clippings. Creek along golf course discharges along side of headwall causing erosion. Stagnant water is present at headwall discharge. No evidence of damage to home owner's yard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Provide a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$32,000

ALTERNATE SOLUTION: Construct a berm along the top of the bank to divert runoff to a new area inlet. Construct 60' of 12" RCP to then convey water to creek.

COST ESTIMATE: \$39,000



➤ **DC-5 - Ladue Estates Drive #5**

LOCATION: Ladue Estates is a residential street west of Spode Road between Ladue Road and Interstate 64/40.

ORIGINAL ID: 1-6 (1999 Master Plan)

PROBLEM DESCRIPTION: Minor erosion observed along backyard near landscaping. Landscaping does not appear damaged. Home owner has placed yard waste in backyard to possibly alleviate problem. Honeysuckle vegetation is present.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Install turf reinforcement mat and restore vegetation along back slope of property.

COST ESTIMATE: \$28,000

ALTERNATE SOLUTION: Construct a berm along the top of the bank to divert runoff to a new area inlet. Construct 220' of 12" RCP to then convey water to existing curb inlet.

COST ESTIMATE: \$66,000

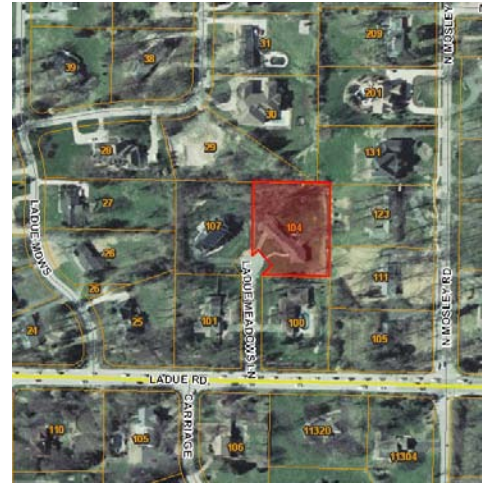


➤ **DC-6 - Ladue Meadows Lane #104**

LOCATION: Ladue Meadows Lane is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 20 (2010 Questionnaire)

PROBLEM DESCRIPTION: Rill erosion observed along west side of property line contributed from runoff of Ladue Meadows. Yard damage observed in backyard, but unable to determine if caused from ponding water. It may be a result from area inlets in backyards of Mosley not being capable of handling flow. Base of MSD inlet at southwest corner of property has eroded.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	20

PREFERRED SOLUTION: Construct an area inlet to collect runoff from Ladue Meadows and connect to the existing curb inlet. Piping would include 150' of 12" RCP.

COST ESTIMATE: \$48,000

ALTERNATE SOLUTION: Reconstruct grass swale using a turf reinforced mat.

COST ESTIMATE: \$39,000

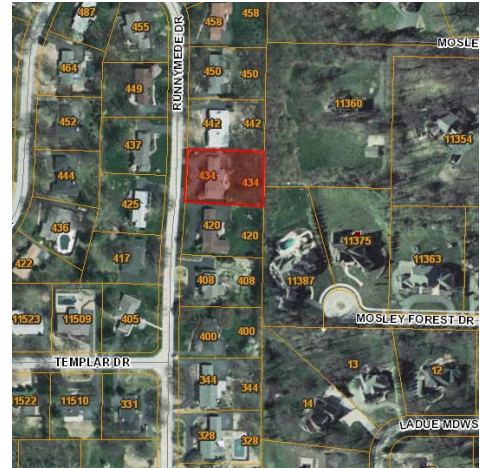


➤ **DC-7 - Runnymede Drive #434**

LOCATION: Runnymede Drive is a residential street east of New Ballas between Olive and Ladue.

ORIGINAL ID: 27 (2010 Questionnaire)

PROBLEM DESCRIPTION: Runoff from neighboring subdivision appears to be flowing down south side of property causing minor rill erosion and marshy ground conditions. Home owner has installed a drain to mitigate issue. Ponding may also be possible on north side of property near driveway, although not evident during site visit.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

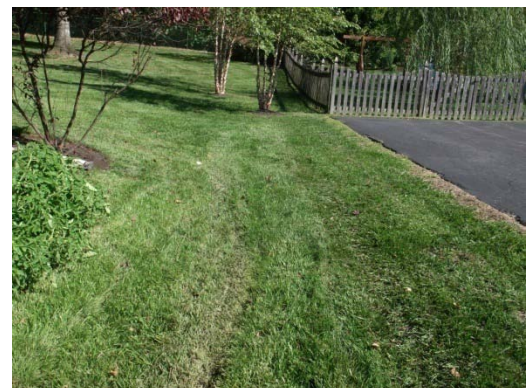
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
TOTAL				20

PREFERRED SOLUTION: Construct 2 area inlets in the backyard of lot 434. The area inlets would be routed to the existing storm inlet. Pipe required includes 300' of 12" RCP.

COST ESTIMATE: \$74,000

ALTERNATE SOLUTION: Regrade backyard and construct a swale to convey runoff to street. Plant vegetation in and around swale to reduce potential for ponding.

COST ESTIMATE: \$49,000



➤ **WC-1 - Mosely Acres Drive #10, 11, 12**

LOCATION: Mosely Acres is a residential street east of Mosley between Olive and Ladue.

ORIGINAL ID: 7-1 (1999 Master Plan)

PROBLEM DESCRIPTION: Overtopping of dam causing flooding at lot 10. Spillway (overflow) of dam is covered with debris and vegetation. Earth dam on east side of Mosley Lake covered in vegetation. Shore erosion along south side of lake.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	2	20
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				30

PREFERRED SOLUTION: Clear spillway area of debris and vegetation to allow overflow to function properly. Raise dam embankment to prevent flooding. Place rip rap along areas of dam that have been affected by shore erosion.

COST ESTIMATE: \$49,000

ALTERNATE SOLUTION: There is no other feasible alternative.



➤ **WC-2 - Graeser Lane #11076**

LOCATION: Graeser Lane is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 16 (2010 Questionnaire)

PROBLEM DESCRIPTION: Flooding occurs in front yard, despite the rip rap channel that exists, intended to collect flow. Water has entered through home's foundation according to resident. Resident explained that newly remodeled homes on Graeser Lane have created additional runoff. Resident has installed drain in sidewalk as well as French drain around front of house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL			10	10

PREFERRED SOLUTION: Construct a new curb along resident's property to contain street runoff. Portion of street may need to be replaced to allow runoff to discharge through rip rap channel.

COST ESTIMATE: \$61,000

ALTERNATE SOLUTION: Install a trench grate in street to collect runoff. The trench grate would be routed to the nearby rip rap channel.

COST ESTIMATE: \$49,000



➤ **WC-3 - Mosley Acres #16**

LOCATION: Mosley Acres is a residential street east of Mosley Road between Olive and Ladue.

ORIGINAL ID: 23 (2010 Questionnaire)

PROBLEM DESCRIPTION: Mosley Acres has been resurfaced (asphalted) causing the curb and gutter not to function properly. Minor erosion damage observed 1'-2' next to street curb. Resident has seeded area. Other properties along Mosley Acres have similar problem.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	3	30
TOTAL			30	30

PREFERRED SOLUTION: Remove and replace approximately 400' of curb and gutter. Seed resident's yards that have been damaged by erosion.

COST ESTIMATE: \$53,000

ALTERNATE SOLUTION: There is no other feasible alternative.



➤ **WC-4 - Mystic Meadows Lane #121**

LOCATION: Mystic Meadows is a residential street east of Mosley between Olive and Ladue.

ORIGINAL ID: 24 (2010 Questionnaire)

PROBLEM DESCRIPTION: Erosion observed along south and north property line (with most severe along south side). Evidence of ponding on south side. Home owner has constructed a berm to control water. Gully erosion at upstream side of property. Home owner has built a wall along driveway to prevent water from flowing onto driveway. A drain has also been installed in attempt to collect a portion of runoff, however, it is undersized. Priority shall be given to the south side of property.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Moderate Risk Structural Erosion-miscellaneous structures	25	Field Investigation	1	25
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				35

PREFERRED SOLUTION: Construct two area inlets in the backyard to collect runoff from adjacent properties. Each area inlet would be routed to the existing storm sewer. The system would include two area inlets and approximately 500' of 15" RCP.

COST ESTIMATE: \$136,000

ALTERNATE SOLUTION: Construct two grass swales to intercept runoff from the north and south side of property and discharge to street of Mystic Meadows.

COST ESTIMATE: \$74,000



➤ **WC-5 - Tureen Drive #11205**

LOCATION: Tureen Drive is a residential street east of Mosley Road between Olive and Ladue.

ORIGINAL ID: 30 (2010 Questionnaire)

PROBLEM DESCRIPTION: Backyard has slight erosion. The site had been disturbed by recent construction of a new retaining wall and was difficult to assess erosion conditions in backyard. Erosion observed at base of MSD area inlet. Resident explained that erosion in backyard has been worse in years past. Resident also explained that a sink hole is present in backyard along berm. Additional photos and history of the issues are available from home owner if needed.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Reconstruct natural swale to convey overland flow to area inlet. Install turf reinforcement mat along swale to prevent erosion. Further investigation is needed to verify if a sink hole exists.

COST ESTIMATE: \$45,000

ALTERNATE SOLUTION: Create a natural stream/pool environment in place of existing storm system and swale. However, this alternative was deemed uneconomical.



➤ **WC-6 - Wedgewood Lane #6, 7**

LOCATION: Wedgewood Lane is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 31, 32 (2010 Questionnaire)

PROBLEM DESCRIPTION: Per discussion with home owner of 6 Wedgewood, runoff from new homes on Deaver and Colonial Hills Parkway is adversely flooding backyard of 6 and 7 Wedgewood after every rain event. Water ponds for several days before draining. Resident explained that water has never entered home, but could if his French drain system ever clogged. Resident also explained that slight erosion occurs on the hillside of backyard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
TOTAL				30

PREFERRED SOLUTION: Construct a new storm system to collect surface runoff and discharge to the existing storm system. The system would include 2 area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.

COST ESTIMATE: \$96,000

ALTERNATE SOLUTION: Construct a grass swale with turf reinforcement mat and route to street curb of Wedgewood.

COST ESTIMATE: \$54,000



➤ **WC-7 - Windrush Creek East #6**

LOCATION: Windrush Creek East is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 33 (2010 Questionnaire)

PROBLEM DESCRIPTION: Severe channel erosion observed in front yard. Resident explained that second pipe culvert was added after new home construction was completed upstream of creek. To relieve street flooding, new curb inlets have been constructed. This contributed additional flow to channel. Resident explained that creek has reached water levels up to top of bank. Erosion was visible on north side of headwall.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Improve existing swale by increasing width and installing turf reinforcement mat. Remove the existing two pipe culverts and replace with one box culvert.

COST ESTIMATE: \$114,000

ALTERNATE SOLUTION: Construct two parallel 24" RCP pipes to replace the existing open channel. Remove and replace the existing culverts and regrade yard as needed.

COST ESTIMATE: \$100,000



➤ **WC-8 - Ladue Estates Drive #71, 73**

LOCATION: Ladue Estates Drive is a residential street west of Spode between Ladue and Interstate 64/40.

ORIGINAL ID: 18 (2010 Questionnaire)

PROBLEM DESCRIPTION: Backyard between lot 71 and 73 was soggy during site visit. No erosion was observed. Resident of lot 71 explained that water runs through backyards and certain areas pond due to insufficient slope of land. At times, runoff diverts from backyard path and drains between the houses. Resident of lot 73 placed rock landscaping around trees as a possible measure to protect trees from flooding.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	2	20
			TOTAL	20

PREFERRED SOLUTION: Regrade backyards to provide adequate slope for drainage. Seed lawns after grading is complete.

COST ESTIMATE: \$52,000

ALTERNATE SOLUTION: Construct a storm sewer system to collect runoff and route to existing storm inlet. The system would include 2 area inlets and 300' of 12" RCP.

COST ESTIMATE: \$74,000



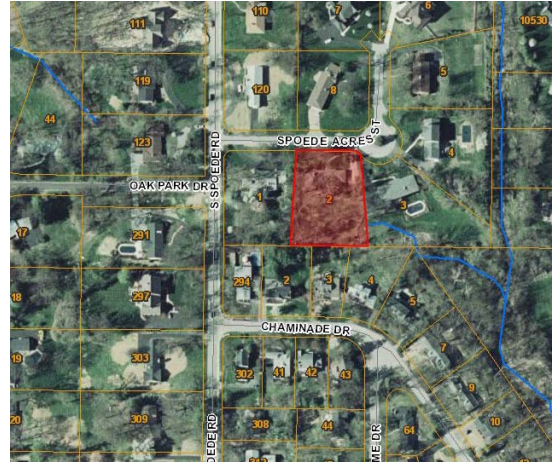
➤ **MS-1 - Spoele Acres Street #2**

LOCATION: Spoele Acres is a residential street east of Spoele between Ladue and Interstate 64/40.

ORIGINAL ID: 4-6 (1999 Master Plan) / 28 (2010 Questionnaire)

PROBLEM DESCRIPTION: Yard on west side of lot 2 has been damaged from runoff. Backyard has been eroded from runoff from adjacent yards. An area inlet exists in backyard, but runoff does not drain properly according to resident. Backyard of lot 1 has same issue in which runoff drains into yard.

Home owner has installed a drain to alleviate problem. Lot 3 has no evidence of erosion issues in backyard.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Reconstruct natural swale to convey overland flow to area inlet. Install reinforcement mat along swale to prevent erosion. To mitigate erosion on west side of property, construct a curb along Spoele Acres to contain street runoff.

COST ESTIMATE: \$67,000

ALTERNATE SOLUTION: Create a natural stream/pool environment in place of existing storm system and swale. However, this alternative was deemed uneconomical.



➤ **MS-2 - Spoede View Court #10677**

LOCATION: Spoede View Court is a residential street east of Spoede Road between Ladue and Interstate 64/40

ORIGINAL ID: 4-7 (1999 Master Plan)

PROBLEM DESCRIPTION: Creek erosion evident along banks behind 10677 Spoede View Court. Severe creek erosion was observed along east side of creek, immediately downstream of culvert headwall. Baffle structures exist at culvert discharge.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct vegetated gabions to stabilize the creek banks and prevent further erosion. Heavy revetment is recommended on the east side of creek just downstream of culvert.

COST ESTIMATE: \$214,000

ALTERNATE SOLUTION: Regrade creek bank and provide a MSD creek biostabilization method consisting of a soil blanket and plantings. Heavy revetment is recommended on the east side of creek just downstream of culvert.

COST ESTIMATE: \$106,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.

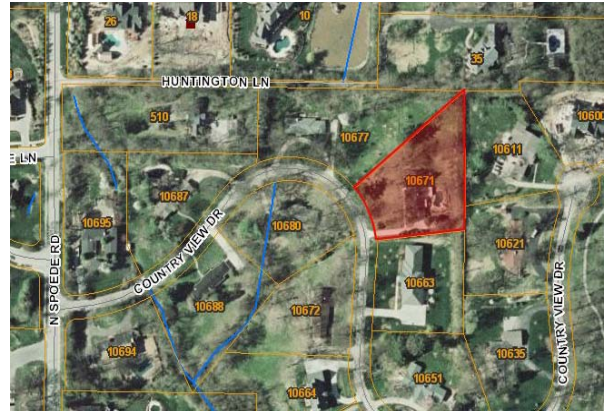


➤ **MS-3 - Country View Drive #10671**

LOCATION: Country View Drive is a residential street east of Spoede Road between Olive and Ladue.

ORIGINAL ID: 3-20 (1999 Master Plan) / 12 (2010 Questionnaire)

PROBLEM DESCRIPTION: After discussion with home owner, flooding and ponding occurs in backyard after every rainfall event. There is an insufficient drainage path for runoff from adjacent properties. Home owner installed six drains in an attempt to mitigate problem. Original swale has been disturbed by subsequent development. Swale is no longer functional. Home owner experiences no flooding into house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	10

PREFERRED SOLUTION: Construct grass swale to intercept runoff and discharge to street of Country View Drive.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Construct a new storm system to convey water directly to creek. The system would consist of an area inlet, manhole, and 525' of 12" RCP.

COST ESTIMATE: \$115,000

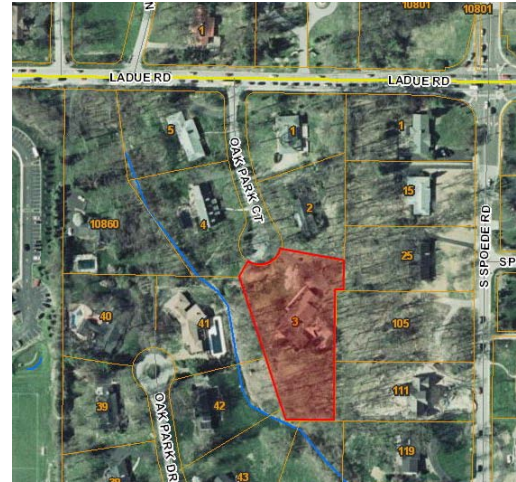


➤ **MS-4- Oak Park Court #3**

LOCATION: Oak Park Court is a residential street west of Spoede Road between Ladue Road and Interstate 64/40.

ORIGINAL ID: 1-8 (1999 Master Plan)

PROBLEM DESCRIPTION: End of street has potential to flood. Curb and gutter upstream of grate inlet covered with debris and leaves. A non-standard grate inlet was completely covered with debris and leaves when arriving at site. Runoff is collected at bottom of street before it exits through either the inlet or paved flume. The grate inlet discharges to the side of yard #3 before entering nearby creek. Side yard #3 appears to drain properly to creek. Riprap has been placed along drainage path.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

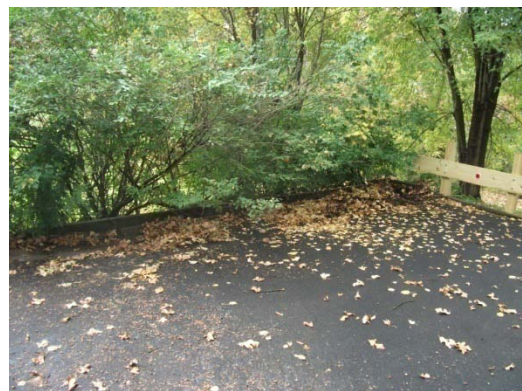
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Roadway Flooding-traffic obstruction on residential streets	10	Field Investigation	1	10
TOTAL				10

PREFERRED SOLUTION: Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12" RCP to convey runoff to creek.

COST ESTIMATE: \$47,000

ALTERNATE SOLUTION: Remove existing grate inlet. Construct grass swale to convey runoff to creek.

COST ESTIMATE: \$36,000

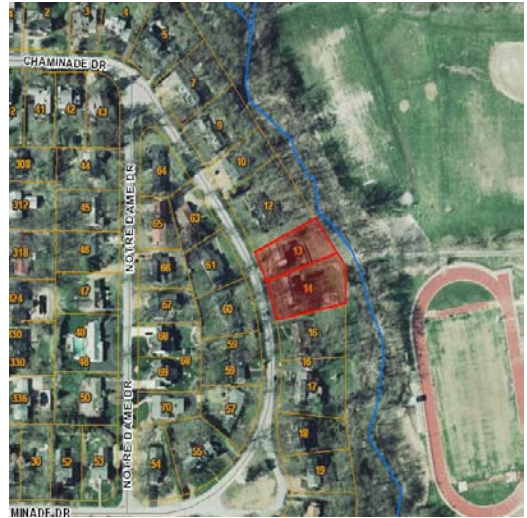


➤ **MS-5 - Chaminade Drive #13, 14**

LOCATION: Chaminade Drive is a residential street east of Spode between Ladue and Interstate 64/40.

ORIGINAL ID: 7 (2010 Questionnaire)

PROBLEM DESCRIPTION: The problem area is located near the pedestrian bridge leading to Chaminade High School. Creek retaining wall upstream of pedestrian bridge has collapsed. Retaining wall downstream of bridge is cracked and eroded at bottom. There is significant creek erosion along upstream and downstream banks. Many tree roots have been exposed. Concrete slabs appear to have been placed under bridge to protect bridge piers.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Moderate Risk Structural Erosion-miscellaneous structures-bridge	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Clear and demolish damaged retaining wall. Install rip rap 50' upstream and downstream of bridge.

COST ESTIMATE: \$63,000

ALTERNATE SOLUTION: Clear and demolish damaged retaining wall. Provide a MSD creek biostabilization method consisting of a soil blanket and plantings 50' upstream and downstream of bridge.

COST ESTIMATE: \$60,000

*These solutions are spot repairs. It is suggested that a watershed wide approach be taken to address the issues, however this is beyond the scope of work.



➤ **MS-6 - Colonial Hills Drive #77**

LOCATION: Colonial Hills is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 9 (2010 Questionnaire)

PROBLEM DESCRIPTION: Resident's yard has visible erosion damage. There is gully erosion along west side of property line. Significant channel erosion was observed on downstream side of culvert. Three drainage pipes from neighboring property discharge onto resident's yard. Marshy and soft ground conditions were present after a week with no rainfall. Location of damage is greater than 100 feet from house.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Construct a pipe system in place of the existing swale. Route the system to a nearby MSD inlet.

COST ESTIMATE: \$169,000

ALTERNATE SOLUTION: Reconstruct the existing grass swale with a heavy turf reinforcement mat. Plant vegetation in areas susceptible to ponding.

COST ESTIMATE: \$74,000



➤ **MS-7 - Larkin Avenue #859**

LOCATION: Larkin Avenue is a residential street west of Spodee between Olive and Ladue.

ORIGINAL ID: 21 (2010 Questionnaire)

PROBLEM DESCRIPTION: Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
TOTAL				20

PREFERRED SOLUTION: Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.

COST ESTIMATE: \$43,000

ALTERNATE SOLUTION: Construct a storm system in place of existing swale. The system would include 3 curb inlets, 400' 12" RCP, and 550' 15" RCP. New curb and gutter would also be constructed to control street runoff.

COST ESTIMATE: \$350,000



➤ **MS-8 - Middlebrook Lane #3 - 6**

LOCATION: Middlebrook Lane is a residential street east of Spoede between Olive and Ladue.

ORIGINAL ID: 22 (2010 Questionnaire)

PROBLEM DESCRIPTION: Bank washout was observed on both upstream and downstream of culvert. Street runoff from Middlebrook Lane has washed away dirt around culvert, exposing tree roots. North side of culvert was full of debris and tree limbs. Rip rap has been placed near street to prevent further erosion.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Improve upstream and downstream approach by placing rip rap. Place rip rap along street surface as well.

COST ESTIMATE: \$53,000

ALTERNATE SOLUTION: Improve upstream and downstream approach with a MSD creek biostabilization method consisting of a soil blanket and plantings.

COST ESTIMATE: \$50,000



➤ **MS-9 - Rondelay Drive #10835**

LOCATION: Rondelay Drive is a residential street west of Spoede between Olive and Ladue.

ORIGINAL ID: 25 (2010 Questionnaire)

PROBLEM DESCRIPTION: Channel erosion observed upstream of MSD inlet. Home owner explained that runoff from adjacent properties has increased over the years causing erosion damage to yard. Home owner has installed two drains to alleviate flooding from street. Street has been overlaid with asphalt causing runoff to spill over street curb.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
Low Risk Structural Erosion-yard erosion	10	Field Investigation	1	10
Frequent Structural Flooding-yard flooding	10	Field Investigation	1	10
			TOTAL	20

PREFERRED SOLUTION: Improve existing swale by installing turf reinforcement mat.

COST ESTIMATE: \$34,000

ALTERNATE SOLUTION: Construct 2 area inlets upstream of existing MSD inlet to intercept runoff. Connect the 2 new inlets to the existing storm sewer with 200' of 12" RCP.

COST ESTIMATE: \$70,000

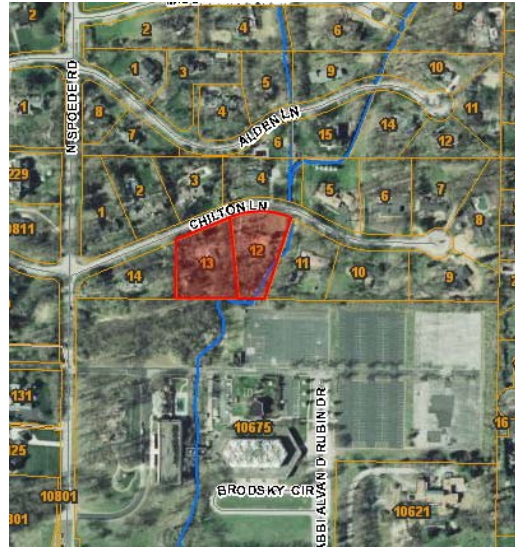


➤ **MS-10 - Chilton Lane #12 - 13**

LOCATION: Chilton Lane is a residential street east of Spoede between Olive and Ladue.

ORIGINAL ID: N/A (Added based on issue identified in Stormwater Committee Meeting)

PROBLEM DESCRIPTION: Erosion at culvert is threatening roadway. Active erosion on south side of Chilton Lane at culvert observed. There are no headwalls. The pipe outlet is damaged. There are several large tree branches/trunks in stream. The pipe appears to be a 24" CMP.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
TOTAL				25

PREFERRED SOLUTION: Replace existing culvert with a new 3' x 3' box culvert. Install headwalls and place rip rap 10' upstream and downstream.

COST ESTIMATE: \$69,000

ALTERNATE SOLUTION: Replace existing culvert with a new 36" CMP. Install headwalls and place rip rap 10' upstream and downstream.

COST ESTIMATE: \$64,000



➤ **PC-1 - Tealwood North Drive #47**

LOCATION: Tealwood is a residential street in the Tealwood subdivision east of Lindbergh between Ladue and Olive.

ORIGINAL ID: 5-4 (1999 Master Plan)

PROBLEM DESCRIPTION: Slight erosion at culvert headwall and outlet. Timber bracing on upstream side. Resident says it was put there to help shore-up the headwall. According to resident, there are no flooding problems. Washout on right descending bank (looking downstream) approximately 60' upstream of culvert. Banks generally well-vegetated except for washout area.



**MSD-CREVE COEUR WATERSHED
PROJECT BENEFIT POINTS – DOCUMENTATION**

Category	Pts.	Documentation	Lots Affected	Points Allotted
High Risk Roadway Erosion-residential	25	Field Investigation	1	25
			TOTAL	25

PREFERRED SOLUTION: Replace existing culvert.

COST ESTIMATE: \$62,000

ALTERNATE SOLUTION: Construct heavy revetment 20' upstream and downstream of culvert to prevent erosion. This solution helps with erosion, but does not improve the structural integrity of the culvert.

COST ESTIMATE: \$23,000



5.0 PRIORITIZATION

Problem areas were further analyzed using a benefit-cost system to determine the cost-effectiveness of each.

5.1 Methodology

One of the goals of the City's Stormwater Master Plan update is to evaluate the existing prioritization methodology and to recommend improvements to the system. To determine the best prioritization plan, the City's current prioritization system was compared to other methods being used. In general, most of the methods fell into one of the categories listed below.

- prioritization formula
- value matrix
- benefit vs. cost

In the sections that follow each methodology is described in more detail along with their advantages and disadvantages.

5.1.1 Current Prioritization Method

The City's existing prioritization methodology is a simple numeric rating system using a scale of 13-1 to prioritize stormwater problems. The rankings are based primarily on threats to property or vehicular access. Table 5-1 is the original City prioritization list.

Table 5-1 - City of Creve Coeur -Original Stormwater Priority Ranking Scale

Rank	Description
13	Flooding where water enters a habitable building
12	Flooding which causes damage to public or private streets
11	Flooding which causes obstruction of traffic on public streets
10	Flooding where water enters a garage or outbuilding
9	Flooding which causes obstruction of traffic on private streets

Table 5-1 (cont.) - City of Creve Coeur - Original Stormwater Priority Ranking Scale

Rank	Description
8	Flooding which causes damage to public or private utilities
7	Stream flow causing significant erosion or sedimentation problems and threatening a habitable building
6	Stream flow causing significant erosion and threatening a garage or outbuilding
5	Stream flow causing significant erosion and threatening a fence, wall or landscaping
4	Stream flow causing significant erosion and threatening a maintained grassed area
3	Flooding or ponding on yards and lots only
2	Stream flow that causes minor erosion or sedimentation problems in maintained areas or appreciable erosion in unmaintained areas, i.e. wooded ravines
1	Minor isolated drainage problems such as clogged or inadequate street inlets

Although this type of scale is the easiest to understand and explain to the public, it does have several drawbacks. For instance this type of ranking does not take into account the number of structures affected nor does it address the costs associated with resolving the problem. Furthermore it does not give a relative merit between projects since several projects can have the same priority ranking.

5.1.2 Other Methodologies

As mentioned above, the other methods considered for comparison fell into one of the categories listed below.

- prioritization formula
- value matrix
- benefit vs. cost

Each is discussed in more detail on the following page.

5.1.2.1 Prioritization Formula

Salt Lake City, Utah prioritized their stormwater projects using the following “prioritization formula”:

$$\text{priority score} = (B+C+D+E+F+G) - (A/H)$$

where: A = cost

B = damage estimate (high-2, medium-1, low-0)

C = potential loss of life (yes-5, no-0)

D = commercial building inundation (high-2, medium-1, low-0)

E = residential building inundation (high-2, medium-1, low-0)

F = inundation of streets > 2' (yes-1, no-0)

G = water quality objectives met (yes-1, no-0)

H = approximate area of flooding reduced by project (acres)

The variables included in this formula were selected by a stormwater committee based on what they thought was important to the citizens of Salt Lake City. The formula ranks each project based on the amount of flooding damage estimated without the project, the possibility of the loss of life if the project is not built, the amount of commercial and residential building inundation, the amount of street inundation, whether water quality objectives are met by the project, and a factor that accounts for the cost of the project. Each of the factors (B-G) are added together and then the cost factor (A/H) is subtracted from the value to determine the prioritization value. In this way the cost is considered a negative factor. The total project cost is divided by the approximate area of flooding that would be eliminated by implementing the proposed improvements so that large projects that reduce large areas of flooding would not be penalized by their high cost.

The main problem with this method is that it is complicated and difficult to explain to the public. Many citizens have an aversion to mathematics and the need to deal with a mathematical equation is antagonizing. To some people this type of formula would lead to a feeling of having something to hide. Another drawback is that their criteria are too vague. High, medium, and low need to be further defined. Also this formula only deals with flooding and it would be further complicated by adding variables to include erosion.

5.1.2.2 Value Matrix

A value matrix is a common way to rank projects. Criteria are chosen to prioritize the projects. Each of these is given a weight that reflects their importance in the community. Then each project is given a rating within the project ranking criteria. The rating is based on a set of parameters under each criterion. An example is shown in Table 5-2, from the stormwater prioritization matrix used in Columbus, Ohio.

Table 5-2 - Ranking a Project Using a Value Matrix - City of Columbus, Ohio

	Health & Safety	No. of People Affected	Size of Area Affected	Years Problem Has Existed	Damage	Leverage of Dollars
Weight	5	4	3	2	4	1
Project Rating	10	7	3	5	6	1
Wt. x Rating	50	28	9	10	24	1
Project Score	(equals the sum of wt. x rating) = 122					

In the example, the category “Years Problem has Existed” was given a “weight” of 2; the ratings within that category were as follows: greater than 40 years, 10 points; 20 to 40 years, 7 points; 10 to 19 years, 5 points; 1 to 9 years, 3 points; and less than one year, 1 point. The project being ranked in this example had existed for 14 years, therefore it was given a rating of 5 points.

This is a method that ranks projects objectively and fairly. It has the capability of allowing the community to select criteria that reflect their priorities. However, this method can be difficult to explain and hard for the public to understand.

5.1.2.3 Benefit vs. Cost

In this type of system an attempt is made to assess the benefits of each project and compare those to its cost of construction. Benefits are usually assigned by a point system that can be modified by the community doing the ranking. The benefit point assignment example shown in Table 5-3 on the next page is taken from a prioritization plan used in Maryland Heights.

			Severe	High	Moderate
		Type of structure threatened	Risk	Risk	Risk
		habitable structures, attached garages, office, commercial, or warehouses	600	150	25
		misc. structure-includes patio, deck, pool, detached garage, paved surface	50	13	5
		fences, sheds	25	6	2
		Yard erosion - top of bank (last five years)		> 4 ft.	2 to 4 ft.
		Points are allotted for yard erosion - top-of-bank based upon		100	25
		the amount of yard lost to creek erosion in the past five years			
		Yard erosion - drainage flow path (ruts, rivulets, kills vegetation)		Yes	No
		Points are allotted for yard erosion-drainage flow path		2	0
		based upon whether or not this process is evident			
		1.4 Erosion Threatening Roadway			
		Points are allotted for each 250 ft length of road affected			
		Single intersections count as two length of road affected			
		Severe erosion risk is defined as actively eroding bank within 10 feet of roadway			
		High erosion risk is defined as actively eroding bank within 11 to 40 feet of roadway			
		Moderate erosion risk is defined as actively eroding bank within 41 to 75 feet of roadway			
			Severe	High	Moderate
		Type of roadway threatened	Risk	Risk	Risk
		arterial	1000	250	50
		collector	800	200	25
		residential	600	150	10
		1.5 Erosion Threatening Utility			
		Points are allotted for each type of structure threatened			
		Severe erosion risk is defined as actively eroding bank within 25 feet of structure			
		High erosion risk is defined as actively eroding bank within 26 to 50 feet of structure			
		Moderate erosion risk is defined as actively eroding bank within 51 to 100 feet of structure			
			Severe	High	Moderate
		Type of structure threatened	Risk	Risk	Risk
		utility pole, sanitary sewer, gas, or water main	50	25	10
		2.0 SECONDARY BENEFITS OF STORMWATER PROJECTS			
				Unit Size	Points
		2.1 Public Multi-use Parks and/or Recreational Facility		min. 1 acre	10
		2.2 Intangible/Miscellaneous Factors		maximum of	
		other safety/health concerns addressed		200 points to be	
		increase in tax base		assigned by	
		reduction in O&M costs		evaluator and	
		aesthetic improvements		approved by the	
				stormwater	
				committee	
		3.0 PREVENTIVE POINTS			
		Points are allotted according to the above point system only when long-term damage is both			
		predictable and preventable. That point total is then discounted 50%			

To assign a ranking, the benefit points are divided by the cost of the project (in thousands of dollars). Below is a sample benefit point criteria table for a project in Maryland Heights that illustrates how it is used in prioritization.

Sample Benefit Point Allocation

**STORMWATER IMPLEMENTATION PLAN
PROJECT BENEFIT POINTS – DOCUMENTATION**

PROJECT: Alan Shepard/Saturn (Midland Creek N. Trib Flooding)				
Category	Pts.	Documentation	Lots Affected	Points Allotted
Frequent Basement Flooding	50	Field Investigation	3	150
Yard Flooding within 25' of a habitable structure	10	Field Investigation	10	100
Occasional Flooding – Residential Street	50	Field Investigation	2	100
Preventive Points	125	"Conservation Stormwater Management Reconnaissance"	see below	125
TOTAL				475

Remarks/Assumptions:

Preventive points were added for the installation of grade controls and bank restoration upstream of the culvert. Opening the culvert will increase velocities in this reach and cause instability in that section of the creek. Points were allocated for Moderate Risk Erosion affecting 10 lots (25 x 10 = 250 points) discounted 50% as outlined in the Maryland Heights Stormwater Implementation Plan Benefit Points Table.

Sample Project Prioritization

PROJECT	STORM WATER COSTS (in thousands)	BENEFIT POINTS	BENEFITS PER THOUSAND \$	RANK
Venus Lane	333	325	0.98	1
11021 Saturn	155	150	0.97	2
Alan Shepard/Saturn (N. Trib flooding)	730	475	0.65	3
11767 Lackland	146	75	0.51	4
Midland Ck. w/ of Fee Fee Rd.	656	188	0.29	5
Vago Park Drainage	128	12	0.09	8
12022 Weshill	139	12	0.09	9
12014 Glenpark	150	10	0.07	10
Essex Tributary Flooding	1306	20	0.02	11

To assign a ranking, the benefit points are divided by the cost of the project (in thousands of dollars). Below is a sample benefit point criteria table for a project in Maryland Heights that illustrates how it is used in prioritization.

Sample Benefit Point Allocation

STORMWATER IMPLEMENTATION PLAN PROJECT BENEFIT POINTS – DOCUMENTATION

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Frequent Basement Flooding	50	Field Investigation	3	150
Yard Flooding within 25' of a habitable structure	10	Field Investigation	10	100
Occasional Flooding – Residential Street	50	Field Investigation	2	100
Preventive Points	125	“Conservation Stormwater Management Reconnaissance”	see below	125
TOTAL				475

Remarks/Assumptions:

Preventive points were added for the installation of grade controls and bank restoration upstream of the culvert. Opening the culvert will increase velocities in this reach and cause instability in that section of the creek. Points were allocated for Moderate Risk Erosion affecting 10 lots (25 x 10 = 250 points) discounted 50% as outlined in the Maryland Heights Stormwater Implementation Plan Benefit Points Table.

Sample Project Prioritization

PROJECT	STORM WATER COSTS (in thousands)	BENEFIT POINTS	BENEFITS PER THOUSAND \$	RANK
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11021 Saturn	155	150	0.97	2
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Midland Ck. w/ of Fee Fee Rd.	656	188	0.29	5
Vago Park Drainage	128	12	0.09	8
12022 Weshill	139	12	0.09	9
12014 Glenpark	150	10	0.07	10
Essex Tributary Flooding	1306	20	0.02	11

5.1.3 Conclusion

It is our recommendation that the City of Creve Coeur adopt a benefit/cost approach to rank their stormwater projects. The system is being used with great success by both the City of Maryland Heights and the Metropolitan St. Louis Sewer District. Project benefits are assigned by a point system that can be selected by the community doing the ranking and, as a result, reflect the City of Creve Coeur's values.

This type of methodology minimizes subjective factors and prioritizes projects in an equitable and cost-effective manner that produces consistent results independent of the evaluator. This prioritization scheme is easily understood and accepted by the community and its objectivity eliminates concerns that socio-political factors would influence the actual implementation of projects. This transparency insulates staff and government officials from pressures unrelated to project merit and pre-empts charges of favoritism.

5.2 Cost Estimates

A cost estimate was computed for each proposed solution. The cost estimate provides an itemized breakdown of each item (i.e. area inlet, excavation, compacted backfill). Unit prices were based on MSD's current unit prices as found in Appendix D. Furthermore, contingency costs were applied to each alternative to account for unanticipated costs. Cost estimates for each project are found in Appendix E.

5.3 Benefit Points

After evaluation of other methods, it was decided that the benefit point system from the Metropolitan St. Louis Sewer District be implemented to provide a means of prioritizing each problem site. This was done, in part, because MSD is the jurisdictional authority for stormwater in the St. Louis Metropolitan Area and a sometimes partner in stormwater projects. As such, a plan compatible with theirs seemed prudent.

As seen in Table 5-4, points were awarded to each site based on the severity and frequency of the flooding and/or erosion. For example, frequent habitable first floor flooding receives 300 points/unit whereas infrequent yard flooding receives 2 points/lot.

5.4 Benefit-Cost Analysis

After reviewing benefit points and cost estimates of each problem, a prioritization of the sites was determined. The benefit-cost ratio was computed by dividing the benefit points

Table 5-4
Creve Coeur Creek Watershed
Benefit Points

	<u>Points</u>	<u>Units</u>
Frequent Structural Flooding (15 Year Flood)		
Habitable first floor	300	Unit
Basements	200	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	50	Unit
Yard flooding	10	Lot
Industrial building	300	2500 sf
Frequent Roadway Flooding (15 Year Flood)		
Emergency access restricted to any habitable structure	200	Lot
Traffic obstruction on arterial streets	50	250 ft
Traffic obstruction on collector streets	25	250 ft
Traffic obstruction on residential streets	10	250 ft
Infrequent Structural Flooding (100 Year Flood)		
Habitable first floor	45	Unit
Basements	30	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	7	Unit
Yard flooding	2	Lot
Industrial building	45	2500 sf
Infrequent Roadway Flooding (100 Year Flood)		
Emergency access restricted to any habitable structure	30	Lot
Traffic obstruction on arterial streets	7	250 ft
Traffic obstruction on collector streets	4	250 ft
Traffic obstruction on residential streets	2	250 ft
High Risk Structural Erosion (within 25 feet of structure)		
Habitable structures	200	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	100	Unit
Industrial buildings	200	2500 sf
High Risk Roadway Erosion (within 25 feet of structure)		
Arterial	100	250 ft
Collector	50	250 ft
Residential	25	250 ft
Low Risk Structural Erosion (greater than 100 feet from structure)		
Yard Erosion	10	Lot
Moderate Risk Structural Erosion (within 26 to 100 feet of structure)		
Habitable structures	50	Unit
Miscellaneous structures including patios/decks, pools, sheds, tennis courts, etc.	25	Unit
Industrial buildings	50	2500 sf
Moderate Risk Roadway Erosion (within 26 to 100 feet of structure)		
Arterial	25	250 ft
Collector	13	250 ft
Residential	6	250 ft

by the cost, in thousands of dollars. The most cost-effective project will have the highest ratio value. Table 5-5 lists each project, its cost, benefit points, and benefit cost per thousand dollars. Table 5-6 sorts the projects in descending order from highest benefit cost ratio to lowest. The highest ranked project is FC-2 because it was the most efficient in terms of most benefits per the cost. Table 5-7 sorts the projects by original classification ID number pertaining to the 1999 Study or 2010 Questionnaire.

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
SC-1	13-9, 5, 6, 8	Chasselle Lane #1, 3, 5 and Chamblee Lane #9, 13, 15, 25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
SC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID						Recommended Alternative	Total Cost	Benefit	
#	Orig. ID #	Project Name	Project Description					Points	Points/\$1000
FC-1	13-4, 1, 15	Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.			Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A
FC-2	13-1	Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.			Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
FC-3	3-10	Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.			Construct an area inlet and berm.	\$51,000	20	0.39
FC-4	11	Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.			Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
FC-5	17	Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.			Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
FC-6	26	Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.			Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43
DC-1	4-8, 29	Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.			Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71
DC-2	3-7	Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.			Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
DC-3	2-4	Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.			Vegetated gabion wall.	\$491,000	10	0.02
DC-4	2-5	Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.			Creek biostabilization.	\$32,000	10	0.31
DC-5	1-6	Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.			Construct turf reinforcement mat.	\$28,000	10	0.36
DC-6	20	Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.			Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42
DC-7	27	Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.			Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
WC-1	7-1	Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.			Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres .	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
WC-8	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
MS-1	4-6, 28	Spoele Acres Street #2	Ponding and erosion in backyard of 2 Spoele Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoele Acres to contain street runoff .	\$67,000	20	0.30
MS-2	4-7	Spoele View Court #10677	Creek erosion behind 10677 Spoele View Court.	Vegetated gabion walls.	\$214,000	10	0.05
MS-3	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Project Number)

Table 5-5

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Benefit Points/\$1000
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
FC-2	13-1	Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.	Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
DC-1	4-8, 29	Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.	Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
WC-1	7-1	Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.	Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres .	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
DC-2	3-7	Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.	Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
FC-6	26	Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.	Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43
DC-6	20	Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.	Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40
FC-3	3-10	Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.	Construct an area inlet and berm.	\$51,000	20	0.39
WC-8	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
DC-5	1-6	Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.	Construct turf reinforcement mat.	\$28,000	10	0.36
SC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
DC-4	2-5	Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.	Creek biostabilization.	\$32,000	10	0.31
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
MS-1	4-6, 28	Spoede Acres Street #2	Ponding and erosion in backyard of 2 Spoede Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoede Acres to contain street runoff.	\$67,000	20	0.30
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
DC-7	27	Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.	Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24
FC-5	17	Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.	Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
MS-3	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
FC-4	11	Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Priority Ranking)

Table 5-6

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Points/\$1000
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
MS-2	4-7	Spoede View Court #10677	Creek erosion behind 10677 Spoede View Court.	Vegetated gabion walls.	\$214,000	10	0.05
DC-3	2-4	Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.	Vegetated gabion wall.	\$491,000	10	0.02
SC-1	13-9, 5, 6, 8	Chasselle Lane #1,3,5 and Chamblee Lane #9,13,15,25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
EC-1	13-4, 1, 15	Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.	Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Original Classification ID- 1999 Study/2010 Questionnaire)

Table 5-7

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
FC-2	13-1	Beauvais Court #741, 749	Erosion and flooding in backyards of 741 and 749 Beauvais Court; flooding endangers home at 741 Beauvais Court.	Construct a berm and area inlet along with 200' of 12" RCP.	\$80,000	85	1.06
FC-1	13-4, 1, 15	Fernridge Creek between Dartagnan Court and Bellerive Estates Drive	Several properties are affected by flooding and erosion along Fernridge Creek. Many homes are located in a 100-year flood plain. Mild to severe erosion occurs along creek banks.	Construct vegetated gabions along the property banks affected by erosion. Construct an earth berm to mitigate flooding issues.	N/A	N/A	N/A
SC-1	13-9, 5, 6, 8	Chasselle Lane #1,3,5 and Chamblee Lane #9,13,15,25	Creek flooding and severe erosion - affecting seven homes along Chasselle and Chamblee Lane.	Construct a berm and place rip rap in areas affected by erosion.	N/A	N/A	N/A
WC-1	7-1	Mosely Acres Drive #10, 11, 12	Overtopping of dam causing flooding of 10 Mosely Acres Drive; shore erosion along lake at 11 and 12 Mosely Acres Drive.	Clear spillway area of debris and vegetation to allow to function properly; rip rap areas of lake affected by shore erosion.	\$49,000	30	0.61
PC-1	5-4	Tealwood North #47	Erosion at culvert headwall and outlet.	Construct heavy reventment 20' upstream and downstream of culvert.	\$62,000	25	0.40
SC-2	5-7	Ladue Woods Drive #12229	Flooding and erosion in backyard of 12229 Ladue Woods Drive; driveway has been previously damaged from runoff.	Construct storm system consisting of 1 area inlet, 230' of 12" RCP and 135' of 15" RCP.	\$87,000	27	0.31
CC-1	5-8	Fernview Drive #1009	Erosion at discharge pipe that drains to creek.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$52,000	10	0.19
CC-2	5-8	Fernview Drive #1020, 1028	Yard erosion in backyard of 1020 and 1028 Fernview Drive.	Construct grass swale using turf reinforcement mat.	\$39,000	20	0.51
SC-3	4-4	Royal Manor Drive #12554	Creek erosion along side property of 12554 Royal Manor Drive.	Creek biostabilization.	\$43,000	10	0.23
SC-4	4-5	Booth Bay Lane #12318	Creek erosion in backyard of 12318 Booth Bay Lane.	Vegetated gabions.	\$104,000	10	0.10
SC-5	4-5	Booth Bay Lane #12310	Gully erosion in backyard of 12310 Booth Bay Lane.	Replace existing storm manhole with an area inlet.	\$68,000	12	0.18
MS-1	4-6, 28	Spoede Acres Street #2	Ponding and erosion in backyard of 2 Spoede Acres Street; moderate erosion on west side of property.	Reconstruct natural swale to convey overland flow to inlet; construct curb along Spoede Acres to contain street runoff.	\$67,000	20	0.30
MS-2	4-7	Spoede View Court #10677	Creek erosion behind 10677 Spoede View Court.	Vegetated gabion walls.	\$214,000	10	0.05
DC-1	4-8, 29	Tarrytown Drive #11732, 11700	Severe creek erosion behind backyard fence of 11732 Tarrytown Drive; creek flooding upstream and downstream of culvert at 11700 Tarrytown Drive.	Creek biostabilization at 11732 Tarrytown Drive; clear and regrade creek bottom at 11700 Tarrytown Drive.	\$56,000	40	0.71

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Original Classification ID- 1999 Study/2010 Questionnaire)

Table 5-7

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit	
						Points	Benefit Points/\$1000
SC-6	4-10	Chamblee Lane #606, 622	Creek erosion behind homes on Chamblee Lane.	Creek biostabilization.	\$265,000	20	0.08
SC-7	4-10, 19	Clion Lane #212 and Ladue Lake Drive #225, 287	Gully erosion in backyards of 212 Clion Lane and 225, 287 Ladue Lake Drive; ponding in yard of 287 Ladue Lake Drive.	Improve existing swale using turf reinforcement mat; regrade and plant vegetation at ponding locations.	\$58,000	40	0.69
SC-8	4-11	Laduemont Drive #240	Creek erosion in backyard of 240 Laduemont Drive.	Place rip rap at end of discharge pipe.	\$40,000	20	0.50
CC-3	3-2	Fernway Lane #928	Ponding in backyard of 928 Fernway Lane at bottom of hillside.	Clear openings of area inlet and regrade backyard.	\$63,000	17	0.27
DC-2	3-7	Fairways Circle #631, 647	Erosion and flooding in backyards of 631 and 647 Fairways Circle.	Construct storm system consisting two area inlets, 250' of 12" RCP, and 130' of 15" RCP.	\$92,000	40	0.43
FC-3	3-10	Hibler Court #373	Erosion and flooding in backyard of 373 Hibler Court due to inadequate concrete flume.	Construct an area inlet and berm.	\$51,000	20	0.39
MS-3	3-20, 12	Country View Drive #10671	Original swale disturbed by subsequent development; ponding in backyard of 10671 Country View Drive.	Construct grass swale and regrade backyard.	\$47,000	10	0.21
SC-9	2-1	Hibler Oaks #219	Minor erosion in backyard of 219 Hibler Oaks.	Construct storm system consisting of 1 area inlet and 190' of 15" RCP.	\$58,000	10	0.17
DC-3	2-4	Villa Coublay Drive #60	Severe creek erosion in ravine behind backyard of 60 Villa Coublay Drive.	Vegetated gabion wall.	\$491,000	10	0.02
DC-4	2-5	Fairways Circle #527	Erosion at backyard hillside of 527 Fairways Circle.	Creek biostabilization.	\$32,000	10	0.31
DC-5	1-6	Ladue Estates Drive #5	Minor erosion in backyard of 5 Ladue Estates Drive.	Construct turf reinforcement mat.	\$28,000	10	0.36
MS-4	1-8	Oak Park Court #3	Street flooding. Non-standard grate inlet completely covered w/ debris and leaves.	Construct new curb and gutter. Replace existing grate inlet with a new curb inlet. Construct 90' of 12 inch RCP to convey runoff to creek.	\$47,000	10	0.21
SC-10	3, 4	Balcon Estates #24, 26	Severe Creek Erosion in yards of 24 and 26 Balcon Estates; flooding occurs in yard of 24 Balcon Estates; residential street flooding occurs.	Vegetated gabion walls.	\$123,000	40	0.33
MS-5	7	Chaminade Drive #13, 14	Creek erosion threatening pedestrian bridge; retaining wall upstream and downstream of bridge has collapsed.	Clear and demolish damaged retaining wall; install rip rap 50' upstream and downstream of bridge.	\$63,000	25	0.40

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Original Classification ID- 1999 Study/2010 Questionnaire)

Table 5-7

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
MS-6	9	Colonial Hills Drive #77	Gully erosion in front yard of 77 Colonial Hills Drive.	Construct storm system in place of existing swale.	\$169,000	20	0.12
FC-4	11	Country Manor Lane #12295	Significant erosion at end of discharge pipe behind 12295 Country Manor Lane.	Construct reno mattress at end of discharge pipe to allow for dissipation of energy.	\$49,000	10	0.20
CC-4	13	Ferntop Lane #12970	Creek flooding and erosion behind backyard of 12970 Ferntop Lane.	Place rip rap along channel and build up creek banks.	\$71,000	20	0.28
CC-5	14	Fernway Lane #12921	Ponding in backyard of 12921 Fernway Lane; runoff is rotting wood retaining wall.	Reconstruct swale to existing conditions; regrade yard and remove retaining wall.	\$45,000	10	0.22
WC-2	16	Graeser Lane #11076	Flooding in front yard of 11076 Graeser Lane; resident reported water entering foundation in years past, however no flooding has occurred since installation of French drain.	New curb along street at 11076 Graeser Lane.	\$61,000	10	0.16
FC-5	17	Halsgame Lane #12318	Minimal erosion along backyard fence line of 12318 Halsgame Lane.	Reconstruct grass swale with turf reinforcement mat.	\$42,000	10	0.24
WC-8	18	Ladue Estates Drive #71, 73	Ponding water in backyards of 71 and 73 Ladue Estates Drive.	Regrade backyards to provide adequate slope for drainage.	\$52,000	20	0.38
DC-6	20	Ladue Meadows Lane #104	Rill erosion at side property of 104 Ladue Meadows Lane.	Construct area inlet and 150' of 12" RCP.	\$48,000	20	0.42
MS-7	21	Larkin Avenue #859	Yard ponding and erosion. Driveway culvert and existing swale filled with dirt. Loss of capacity causing erosion on south side of property from runoff diverted from swale and culvert.	Improve existing swale adjacent to Larkin Avenue by installing turf reinforcement mat. Remove and replace existing pipe culvert.	\$43,000	20	0.47
MS-8	22	Middlebrook Lane #3-6	Street runoff eroding area around culvert; culvert crosses under Middlebrook Lane.	Improve upstream and downstream approach by placing rip rap; place rip rap along street surface as well.	\$53,000	25	0.47
WC-3	23	Mosley Acres #16	Insufficient curb and gutter causing minor yard erosion on Mosley Acres.	Remove and replace approximately 400' of curb and gutter.	\$53,000	30	0.57
WC-4	24	Mystic Meadows Lane #121	Erosion at south and north property line of 121 Mystic Meadows Lane.	Construct storm system consisting of two area inlets and 500' of 15" RCP.	\$136,000	35	0.26
MS-9	25	Rondelay Drive #10835	Channel erosion in backyard of 10835 Rondelay Drive upstream of MSD inlet; home owner has experienced flooding in years past.	Improve existing swale with turf reinforcement mat.	\$34,000	20	0.59
FC-6	26	Royal Valley Drive #12121, 12135	Erosion in backyard of 12121 and 12135 Royal Valley Drive.	Reconstruct grass swale with turf reinforcement mat.	\$47,000	20	0.43

City of Creve Coeur
Prioritization of Creve Coeur Creek and Deer Creek Watersheds
(Sorted by Original Classification ID- 1999 Study/2010 Questionnaire)

Table 5-7

New ID #	Orig. ID #	Project Name	Project Description	Recommended Alternative	Total Cost	Benefit Points	Benefit Points/\$1000
DC-7	27	Runnymede Drive #434	Ponding water in backyard of 434 Runnymede Drive.	Construct storm system consisting two area inlets and 300' of 12" RCP.	\$74,000	20	0.27
WC-5	30	Tureen Drive #11205	Erosion in backyard of 11205.	Reconstruct natural swale with turf reinforcement mat.	\$45,000	10	0.22
WC-6	31, 32	Wedgewood Lane #6, 7	Flooding in backyard of 6 and 7 Wedgewood Lane; minor erosion on hillside of 6 Wedgewood Lane.	Construct storm system consisting of two area inlets, 1 manhole, 170' of 12" RCP, and 170' of 15" RCP.	\$96,000	30	0.31
WC-7	33	Windrush Creek East #6	Severe channel erosion in front yard of 6 Windrush Creek East.	Improve existing swale by increasing width and installing turf reinforcement mat; remove existing culverts and replace with one box culvert.	\$114,000	10	0.09
MS-10	extra #1	Chilton Lane #12-13	Erosion at culvert is threatening roadway; pipe outlet damaged.	Replace existing culvert with a new 3' x 3' box culvert.	\$69,000	25	0.36
SC-11	extra #2	Dartagnan Court #13200	Erosion at end of discharge pipe which is located on hillside of 13200 Dartagnan Court.	Place rip rap at end of discharge pipe.	\$42,000	10	0.24

6.0 Geographic Information System (GIS)

This section discusses the use of a web-based GIS that was created to input field observations.

6.1 Description and Capabilities

A comprehensive database of property parcel, aerial imagery, and field observation data was developed for the use of the City of Creve Coeur utilizing ESRI ArcGIS software. Initial background data for the GIS utilized Aerial and property data obtained from the St. Louis County GIS services. Creeks and watershed boundaries were obtained from the Missouri Spatial Data Information Service.

Current problem areas within the City of Creve Coeur were entered into the GIS. Attributes such as property address, previous source ID, current project ID, problem description, recommended solution and cost estimate are included for each area.

A web-based read-only version of the GIS was created to provide the City easily accessible data from any computer with an Internet connection. The site can be accessed through the following address: <http://maps.hornershifrin.com/CreveCoeurStormwater/>. The web-based system provides all data attributes from each problem as well as field observations and photos. The system displays a color-coded visualization of each stormwater problem according to watershed location. Future problem areas can be easily added in the GIS by a consultant GIS Analyst to provide an up-to-date map of stormwater concerns. All GIS data attributes within the system are secure since the system only allows read-only and print capability via the Internet.



DEPARTMENT OF PUBLIC WORKS STAFF MEMORANDUM

DATE: October 29, 2012

TO: Creve Coeur Planning and Zoning Commission

CC: Paul Langdon, Director of Community Development
Jim Heines, Director of Public Works

FROM: Matt Wohlberg, P.E., City Engineer

SUBJECT: Project Update and Section 89 Recommendation
Middlebrook and Chilton Culvert Rehabilitation Projects

Engineering design plans are being developed for the replacement of failing drainage culverts beneath Middlebrook Lane and Chilton Lane. Investigation into these issues found the problems to be worse than initially expected, and it appears that these culverts will need to be replaced rather than repaired in place. City staff presents the proposed improvements and a phased approach to implement them to the Planning and Zoning Commission to seek the Commission's recommendation for approval to the Creve Coeur City Council.

Existing Conditions

In early 2011, City staff identified deficiencies in the drainage culvert that runs beneath Middlebrook Lane and became aware of the outright failure of the end of a culvert that runs beneath Chilton Lane.

Middlebrook Lane. A large metal drainage culvert carries a significant tributary of Monsanto-Sunswept Creek beneath Middlebrook Lane generally along the property lines of #3 and #5 on the north and #4 and #6 on the south. The bottom of this culvert pipe has rusted away, and a concrete lining of the base has also begun to fail. Reviews of the site have found evidence that storm water overtops Middlebrook Lane during heavy rain events, such as significant erosion on the south side of the street above the culvert.

Chilton Lane. A smaller drainage culvert carries a relatively short tributary of Monsanto-Sunswept Creek beneath Chilton Lane, generally along the property lines of #3 and #4 on the north and #12 and #13 on the south. The downstream (south) end of the culvert has collapsed, which has created a significant and hazardous hole just off of the south edge of the pavement.

Site Reviews

City staff visited the Middlebrook and Chilton sites with a representative from the Metropolitan St. Louis Sewer District (MSD) in early 2011 and proposed to partner with MSD to repair these culverts. This proposal was not accepted, as MSD explained that budget restrictions have limited their stormwater repairs to only emergency repairs.

The subject culverts were included among the sites evaluated by Horner & Shifrin, Inc. as part of the current Storm Water Master Plan Update project. Through their review, Horner & Shifrin identified these sites as two of the highest priority issues on the east side of Creve Coeur.

In addition, the City's Storm Water Committee visited both the Middlebrook and Chilton sites as part of its meeting on October 15, 2011. During the Committee's site review of the Chilton Lane culvert that day, the committee restated its support for the rehabilitation of these culverts as soon as possible.

Proposed Improvements

The City retained the design services of Intuition & Logic to review the existing conditions and to propose and design a solution to the issues found at each culvert. Through their review, Intuition & Logic found that the existing culverts are in poor condition and are undersized for the area that drains to each culvert, making the replacement of the culverts the only viable option. Furthermore, the presence of the regulatory flood plain at each of these culverts complicated the use of culvert liners or other apparent methods to use the existing culverts in place. It is unlikely that such repairs to these culverts would pass the necessary permitting reviews by the Metropolitan St. Louis Sewer District (MSD) or the Missouri Department of Natural Resources (DNR).

Design plans for the replacement of these culverts have been developed and are attached for reference.

The proposal for each of the culverts is similar in nature: replace the existing culvert with two parallel culverts that have staggered elevations. At each location, the bottom of one culvert would be about one foot higher than the bottom of the other. This design establishes the lower culvert as the one carrying constant flow while holding the upper culvert in reserve for high-flow situations. In doing so, the two-culvert approach reduces the spread of the typical stream flow, and this maintains adequate flow velocity to reduce the chance that siltation will occur in the culvert. Furthermore, this approach provides the flow capacity needed to handle the demands of significant rain events.

Access. Both Middlebrook Lane and Chilton Lane are small residential streets, and each has its sole access point on Spoede Road. The replacement of these culverts will require the removal of the full width of the roadway pavement that will make it difficult or impossible to maintain access through the construction site. Therefore, the proposal includes the construction of a temporary road along the side of each project site that will be used to maintain access for the residents of these streets during construction.

Easements. The scope of the proposed improvements will require the City to acquire temporary construction easements from the adjacent property owners prior to construction. The City will request that these easements be donated in exchange for concessions during the restoration of the area.

Site restoration. A less technical, yet equally important aspect of the proposal is the restoration of the site beyond the culvert replacement. The proposed improvements include several decorative elements and other considerations to help preserve the nature of each street through the project.

- **Headwalls and fencing.** The proposed improvements include modular block headwalls at each end of the culverts with a fence lining the top of each of these walls. The modular block walls are proposed to be manufactured blocks with a textured face and a brown/charcoal color blend (similar in shape and color to those recently installed at Conway Park), and the fence is proposed to be similar to the standard black steel fence that has recently been installed along Conway Road and elsewhere.
- **New sidewalk.** The temporary road at each site presented an opportunity to add a sidewalk at each culvert crossing upon the removal of the temporary pavement. Through

the progression of the design, City staff found that, not only were the residents on Chilton Lane opposed to the sidewalks, but the site conditions and the nature of each street lent each site to a design without a sidewalk. No new sidewalks are proposed as part of the proposed improvements.

- **Plantings.** The proposed improvements will require the removal of several trees and bushes in the vicinity of each culvert. The design proposal includes the addition of native plant species along the creek within the disturbed area, and the City is committed to planting new trees and bushes for those that will be removed as part of this project. As mentioned above, the City will need to acquire temporary construction easements from the adjacent homeowners, and the types of trees and shrubs to be planted will likely be determined through the negotiation process for the easements.

Public Informational Meeting

Residents of both Middlebrook Lane and Chilton Lane were invited to a public informational meeting at the Creve Coeur Government Center on August 21, 2012. A total of seven residents attended the meeting, representing five households. Three of those present were homeowners immediately adjacent to the culverts.

The meeting was rather informal and was set up to explain the improvements through a discussion of the plans and to hear any concerns regarding the proposed project. The plans met with general acceptance, although the residents were in general opposition to the sidewalk proposed for the Chilton Lane site. Another concern was the impact to trees in and around the creek, and City staff indicated that these will be replaced as best as possible, albeit with younger and smaller trees in most cases. It was generally understood that the City and the affected residents would need to discuss and agree to a planting plan during negotiations for access to the construction sites.

Financial Impact

Upon agreeing that repairing the existing culverts was not likely to be permitted at either site, and considering the apparent under-sized culvert at each location, Intuition & Logic and City staff began discussions regarding full replacement of each culvert. It was clear from the initial stages of the design process that the proposed improvements would likely exceed the budget for the work.

Cost estimates for the culvert replacements were developed by Intuition & Logic as part of their professional design services. The estimated costs of replacing the culvert at each site are (approximately):

Chilton Lane.....	\$ 127,000
Middlebrook Lane.....	\$ 210,000
Total	\$ 337,000

The City's Capital Improvement Plan for the (current) 2013 fiscal year identifies \$125,000 for stormwater improvements to Middlebrook Lane and Chilton Lane (account 02-61-71-9509-13515). The CIP budget was set on the assumption that these culverts could be repaired in place.

Assistance from MSD. These culvert repairs were presented to MSD for consideration for funding or funding assistance in late 2011. MSD had found some capital improvement funding for the Deer Creek watershed, which includes the streams beneath both Middlebrook Lane and Chilton Lane. This funding request was unsuccessful, as MSD identified other projects as higher priorities within the watershed.

Phased Approach

The Capital Improvement Plan budget is far less than what is expected to be required to complete the proposed work for both culverts, but it is relatively close to the projected cost of the improvements to Chilton Lane. Given that the culvert beneath Chilton Lane has collapsed and has left a potentially hazardous hole immediately adjacent to the road pavement, and given that the situation at Middlebrook appears stable for now, City staff recommends the adoption of a phased approach to these culvert improvements, whereby the Chilton Lane and Middlebrook Lane culvert improvements are developed and completed as separate projects.

Furthermore, City staff recommends that the first phase of the project be to complete the proposed improvements at Chilton Lane and that these improvements be pursued during the current fiscal year. It is understood that that bids for the project may be higher than the budget. If that is the case, then discussions regarding adjusting the budget to finance the project or abandoning it will be necessary.

This recommendation includes the pursuit of future capital improvement funds for the replacement of the culvert beneath Middlebrook Lane.

Requested Action

City staff seeks the Planning and Zoning Commission's recommendation to the Creve Coeur City Council for the approval of the proposed replacement of the culverts beneath Middlebrook Lane and Chilton Lane. Furthermore, City staff seeks the Commission's recommendation to the City Council for the phased approach described above, whereby these two improvements would be separated into two separate projects that would likely be constructed in different years.

The separation of the two projects is necessary for their implementation, because the combined cost of the two improvements would far exceed the budget allocated for that purpose in the Capital Improvement Plan. Therefore, one recommendation is sought from the Commission that includes the design and the separation of the improvements into two projects.

A sample motion would be as follows:

I move that the Commission recommend the (approval/disapproval/conditional approval) of the proposed improvements to the culverts beneath Middlebrook Lane and Chilton Lane, as recommended by the City's Storm Water Committee, as well as the proposed phased approach to these improvements, as recommended by City Staff.

The Commission's options are to recommend approval (with or without conditions) or to recommend disapproval.

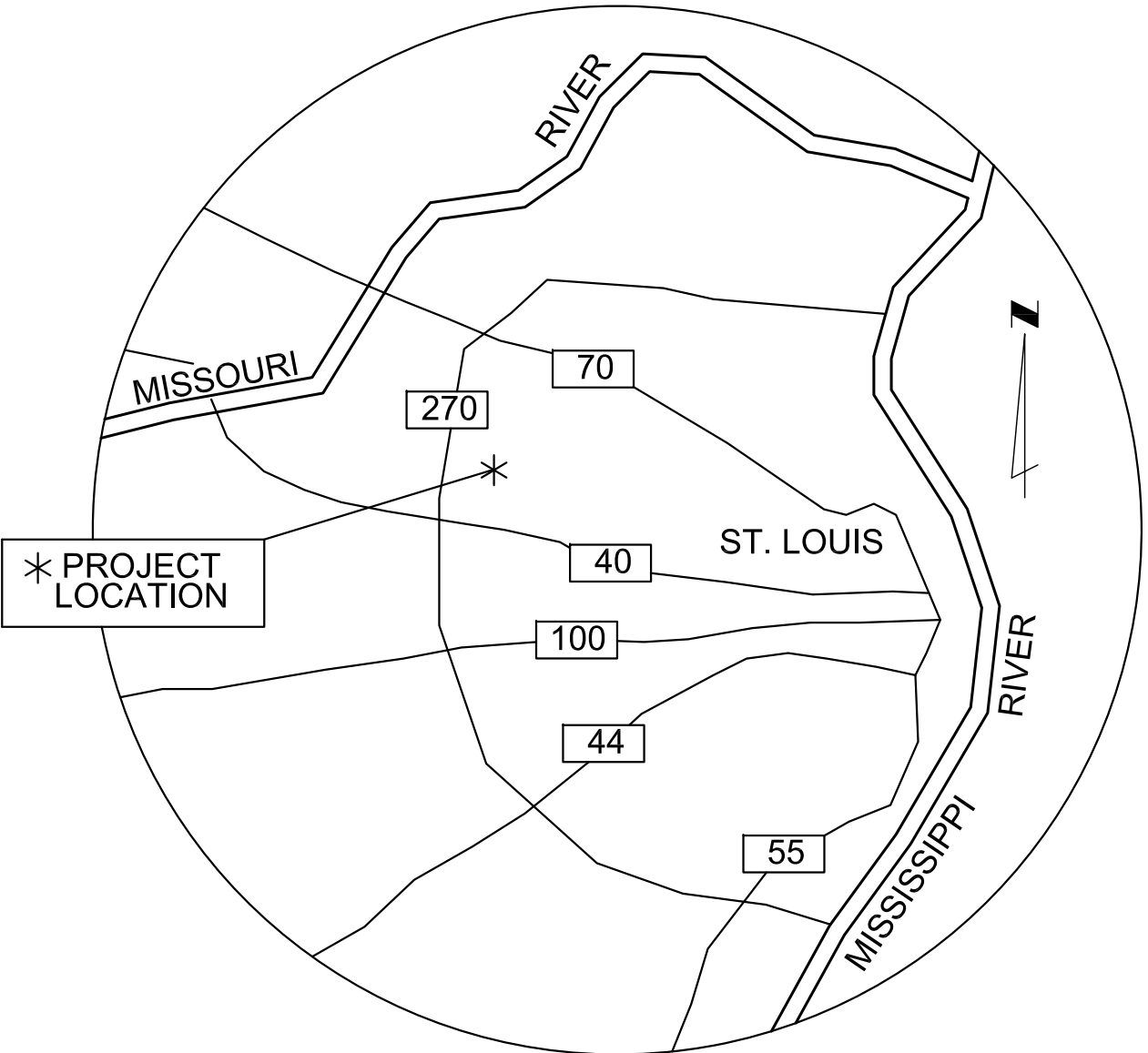
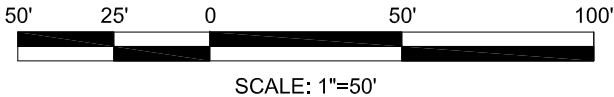
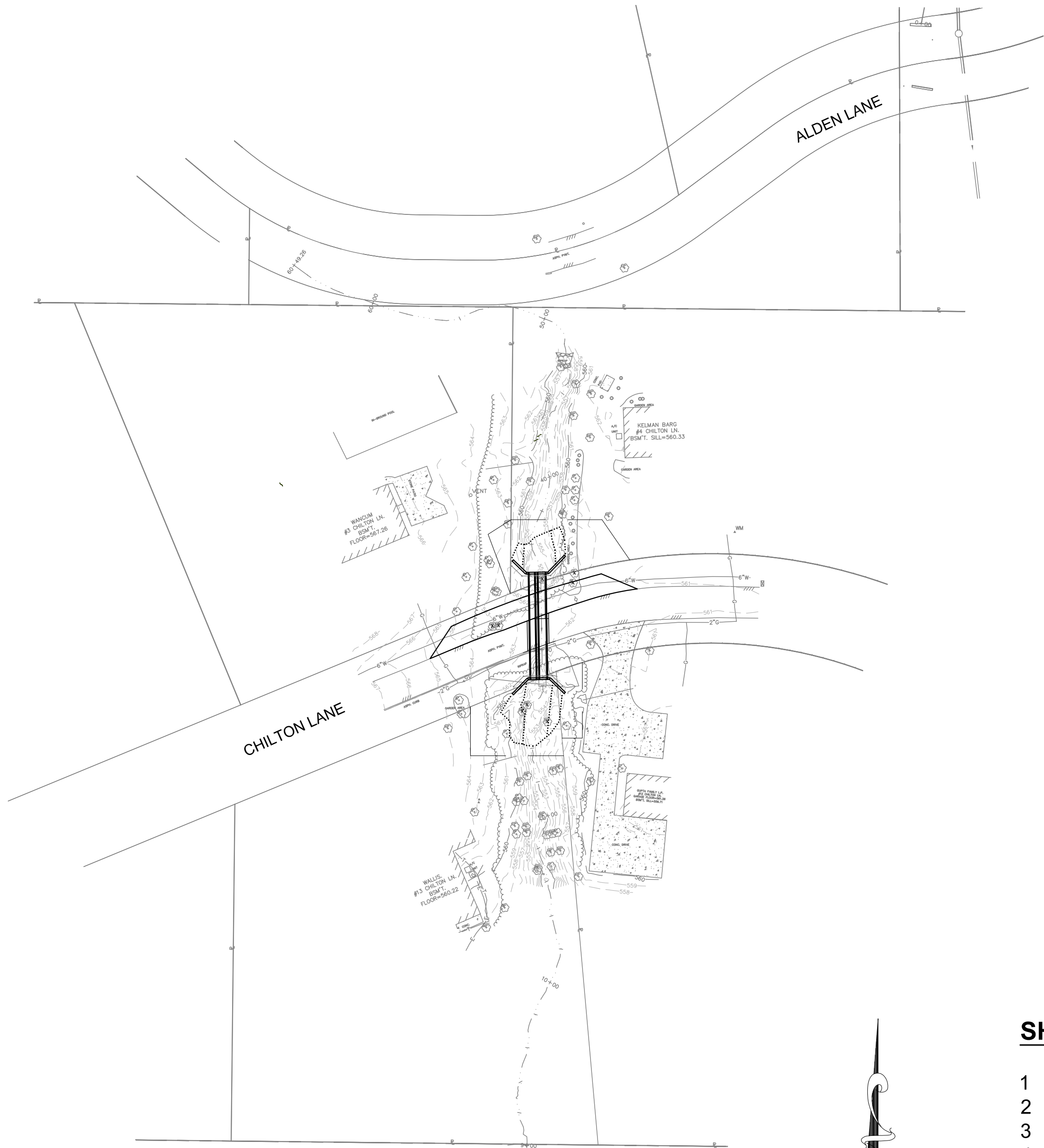
Attachment: Final design plans for Chilton Culvert Rehabilitation, dated 10/16/2012.

Final design plans for Middlebrook Culvert Rehabilitation, dated 10/16/2012

Chilton

Culvert Rehabilitation

CITY OF CREVE COEUR, MISSOURI



LOCATION MAP

NOT TO SCALE

PROJECT TEAM

OWNER:

CITY OF CREVE COEUR

300 N. New Ballas Road
Creve Coeur, Missouri 63141
(314) 432-6000



CIVIL ENGINEER:

INTUITION & LOGIC

16253 Swingley Ridge Road-Suite 100
St. Louis, MO 63017
(636) 777-3000
License No. 2000152987



SURVEYOR:

SABUR, INC.

1751 Ashby Road
St. Louis, Missouri 63114
(314) 428-1414



BENCHMARKS:

MSD BENCHMARK:

13-77 563.08 - "L" ON SOUTHWEST CORNER OF CAPSTONE FOR LOW WALL AT EXTREME EAST END OF STEPS AT SOUTH ENTRANCE, 30' DIRECTLY SOUTH OF CORNER STONE INSCRIBED (5721-1961) AT SOUTHEAST CORNER OF TEMPLE ISRAEL; NORTHEAST CORNER OF SPOEDE AND LADUE ROADS

PROJECT BENCHMARK 01:

"SQUARE" CUT IN THE NORTHWEST CORNER OF A CONCRETE DRIVEWAY APRON LOCATED AT #12 CHILTON LANE.
ELEV.=561.72

PROJECT BENCHMARK 02:

"SQUARE" CUT IN THE NORTHEAST CORNER OF THE SOUTH CONCRETE HEADWALL OF A CULVERT LOCATED AT ALDEN LANE.
ELEV.=561.95

SHEET INDEX:

- 1 COVER
- 2 NOTES AND LEGEND
- 3 OVERALL PLAN
- 4 PLAN AND PROFILE
- 5-7 DETAILS
- 8 PLANTING PLAN
- 9 CROSS SECTIONS

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Professional Engineer Seal
Mark Edward Meyer, P.E.
E-2000150043

Expiration Date: Dec. 31, 2012

CONSTRUCTION & GRADING NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A SET OF "APPROVED" ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION.
2. ANY DEVIATION FROM THESE DESIGN PLANS MAY CAUSE THE WORK TO BE UNACCEPTABLE.
3. ANY UNANTICIPATED CONDITIONS ENCOUNTERED DURING THE CONSTRUCTION PROCESS SHALL BE IDENTIFIED IN WRITING TO THE OWNER/ENGINEER IMMEDIATELY.
4. THE STREETS SURROUNDING THESE PROJECT SITES AND ANY STREET USED FOR CONSTRUCTION ACCESS THERETO SHALL BE KEPT FREE FROM MUD AND CONSTRUCTION DEBRIS AND SHALL BE CLEANED THROUGHOUT THE DAY.
5. ALL TRASH AND DEBRIS ON SITE, EITHER EXISTING OR FROM CONSTRUCTION, MUST BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
6. NO EXCAVATION SHALL BE MADE SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PROPERTY OR ANY PUBLIC OR PRIVATE STREET WITHOUT SUPPORTING AND PROTECTING SUCH PUBLIC OR PRIVATE STREET OR PROPERTY FROM SETTLING, CRACKING, OR OTHER DAMAGE.
7. ALL GRADES SHALL BE WITHIN 0.2 FEET, PLUS OR MINUS, OF THOSE SHOWN ON THE PLAN. GRADING TO BE REVIEWED AND APPROVED BY OWNERS REPRESENTATIVE.
8. CONTRACTOR IS RESPONSIBLE FOR MONITORING GRADING OPERATION AND ACCURACY OF FINAL ROUGH GRADES. CONTACT ENGINEER OF ANY DISCREPANCIES AFFECTING FINAL GRADING BALANCE.
9. SITE CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS PREPARED. CONTRACTOR SHALL VISIT SITE TO FAMILIARIZE THEMSELVES WITH THE CURRENT CONDITIONS.
10. ALL PROJECT COORDINATES AND ELEVATIONS ARE BASED ON PROJECT BENCHMARKS AS LISTED BELOW.
- PROJECT BENCHMARK 01:
"SQUARE" CUT NEAR THE NORTHWEST CORNER OF A CONCRETE DRIVEWAY APRON LOCATED AT #12 CHILTON LANE.
ELEV.=561.72
- PROJECT BENCHMARK 02:
"SQUARE" CUT IN THE NORTHEAST CORNER OF THE SOUTH CONCRETE HEADWALL OF A CULVERT LOCATED AT ALDEN LANE.
ELEV.=561.95
11. ALL EXISTING TOPOGRAPHY, UNDERGROUND UTILITIES, STRUCTURES AND ASSOCIATED FACILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS AND ELEVATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER FACILITIES, THE EXISTENCE OF WHICH ARE NOT PRESENTLY KNOWN.
12. CONTRACTOR IS TO VERIFY ALL EXISTING STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL AND STARTING WORK.



13. THE GENERAL CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PROVIDE CABLE TV, PHONE, ELECTRIC, GAS AND IRRIGATION SERVICES. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SITE LAYOUTS FOR THESE UTILITIES AND SHALL COORDINATE AND PROVIDE CONDUIT CROSSINGS AS REQUIRED. THIS COORDINATION SHALL BE CONSIDERED INCIDENTAL TO GENERAL CONTRACTOR WITH OWNER. ANY CONFLICTS IN UTILITIES SHALL BE CORRECTED BY THE GENERAL CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
14. BEFORE EXCAVATING OVER OR ADJACENT TO ANY EXISTING UTILITIES, CONTRACTOR SHALL NOTIFY THE OWNER OF SUCH UTILITIES TO ENSURE THAT PROTECTIVE WORK WILL BE COORDINATED AND PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER OF THE UTILITY INVOLVED. IF ANY EXISTING SERVICE LINES, UTILITIES AND UTILITY STRUCTURES WHICH ARE TO REMAIN IN SERVICE ARE UNCOVERED OR ENCOUNTERED DURING THIS OPERATION, THEY SHALL BE SAFEGUARDED, PROTECTED FROM DAMAGE AND SUPPORTED IF NECESSARY.
15. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS REGARDING PRIVATE UTILITIES ON THE PREMESIS, INCLUDING BUT NOT LIMITED TO IRRIGATION SYSTEM AND LIGHTING FACILITIES.
16. CONTRACTOR SHALL NOT REMOVE ANY TREE OR FENCE, UNLESS MARKED FOR REMOVAL ON THE PLANS WITHOUT PRIOR APPROVAL.
17. ALL APPLICABLE PROVISIONS OF THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT ARE HEREIN INCORPORATED BY REFERENCE.
18. THE CONTRACTOR, BY USING THESE PLANS FOR THEIR WORK, AGREE TO HOLD HARMLESS ILINC ENGINEERING, INC. THE CITY OF CREVE COEUR, MISSOURI, THEIR EMPLOYEES AND AGENTS AND THE OWNER WHILE ACTING WITHIN THE SCOPE OF THEIR DUTIES FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DAMAGES, AND THE COST OF DEFENSE ARISING OUT OF CONTRACTOR(S) PERFORMANCE OF THE WORK DESCRIBED HEREIN, BUT NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, HIS AGENTS, THE ENGINEER, HIS EMPLOYEES AND AGENTS.

19. ALL "CLEARING AND GRUBBING" SHALL INCLUDE CLEARING OF TREES, STUMPS, BRUSH, FENCES, POSTS, MAILBOXES AND OTHER EXISTING SURFACE FEATURES AS NECESSARY BY THE CONTRACTOR TO PERFORM THE WORK SHOWN ON THE PLANS.
20. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE AND ORDERLY PASSAGE OF TRAFFIC AND PEDESTRIANS WHERE HIS/HER OPERATIONS ABUT PUBLIC THOROUGHFARES AND ADJACENT PROPERTY IN ACCORDANCE WITH LOCAL ORDINANCE AND ST LOUIS COUNTY REQUIREMENTS.
21. AREAS OUTSIDE THE R.O.W. LINE OR CONSTRUCTION LIMIT LINE IMPACTED BY OPERATIONS OF THE CONTRACTOR SHALL BE RETURNED TO THE STATE IT WAS FOUND PRIOR TO NEW CONSTRUCTION, EXCEPT WHERE NEW WORK IS SHOWN.
22. STREET PAVING AND CURBS TO REMAIN SHALL BE PROTECTED FROM DAMAGE AND IF DAMAGED, SHALL BE REPLACED PROMPTLY IN CONFORMANCE WITH THE MUNICIPALITY OR ST LOUIS COUNTY STANDARD.
23. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
24. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT ALONG LIMITS OF PROPOSED REMOVAL BEFORE COMMENCEMENT OF PAVEMENT REMOVAL.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE OWNER OF THE ROADWAY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH ST LOUIS COUNTY STANDARD SPECIFICATIONS. ALL TRAFFIC CONTROL WORK SHALL BE DONE IN ACCORDANCE WITH MUTCD AND CREVE COEUR.
27. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
28. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS BEFORE CONSTRUCTION BEGINS.
29. STANDARD CONSTRUCTION: ALL STORM AND SANITARY SEWER STRUCTURES ARE TO CONFORM TO THE STANDARD DETAILS AND CONSTRUCTION SPECIFICATIONS SHOWN IN THE CURRENT METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009.
30. PUBLIC SEWER MAINTENANCE: MAINTENANCE OF THE SEWERS DESIGNATED "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.
31. FUTURE DISTURBANCE NOTE FOR PROJECTS THAT DO NOT PROPOSE A BMP OR DETENTION:
STORMWATER MANAGEMENT NOTE:
LAND AREA DISTURBED = 0.20 ACRES
ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN P-XXXXXXX-XX)

ABBREVIATIONS

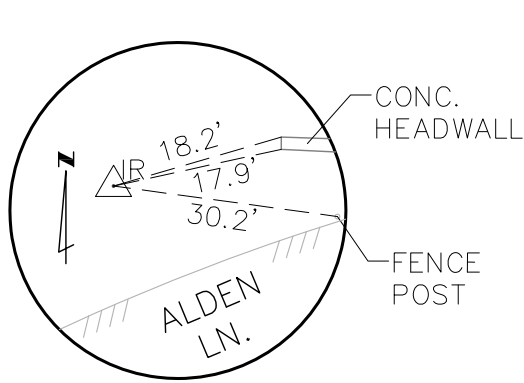
- | | |
|---------|--------------------------------------|
| AI | AREA INLET |
| ATG | ADJUST TO GRADE |
| B.M. | BENCH MARK |
| CONC. | CONCRETE |
| CTV | CABLE TELEVISION |
| DND | DO NOT DISTURB |
| E | ELECTRIC |
| ELEV | ELEVATION |
| ESMT | EASEMENT |
| EXIST | EXISTING |
| FES | FLARED END SECTION |
| FH | FIRE HYDRANT |
| FL | FLOW LINE |
| FO | FIBER OPTIC |
| FT | FEET |
| G | GAS |
| GCI | GRATED CURB INLET |
| HGL | HYDRAULIC GRADE LINE |
| I.D. | INNER DIAMETER |
| IN | INCHES |
| IP | IRON PIN |
| MAX | MAXIMUM |
| MH | MANHOLE |
| MIN | MINIMUM |
| PCB | PHONE CABLE BOX |
| PED | PEDESTAL |
| PPED | POWER PEDESTAL |
| PROP | PROPOSED |
| PVC | POLYVINYL CHLORIDE |
| RCP | REINFORCED CONCRETE PIPE |
| SAN | SANITARY |
| SMH | SANITARY MANHOLE |
| STA | STATION |
| T | TELEPHONE |
| TBR | TO BE REMOVED |
| TBR&R | TO BE REMOVED AND REPLACED |
| TBR&RBO | TO BE REMOVED AND REPLACED BY OTHERS |
| TBR&REL | TO BE REMOVED AND RELOCATED |
| TPED | TELEPHONE PEDESTAL |
| TVPED | TELEVISION PEDESTAL |
| TYP | TYPICAL |
| UIP | USE IN PLACE |
| W | WATER |

LEGEND

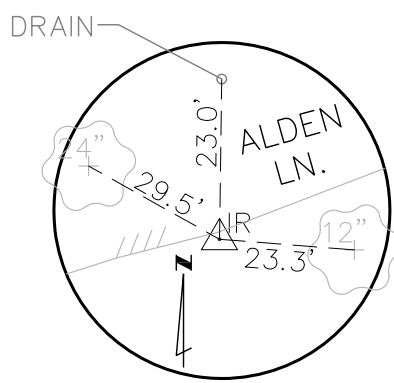
- | | | |
|-----------------|---|-----------------------------------|
| R | - | RECORD |
| C | - | CALCULATED |
| 1 | | SURVEY POINTS ESTABLISHED |
| 100 | | SURVEY MONUMENTATION FOUND |
| x ^{SS} | | CROSS FOUND |
| CM | | CONCRETE MONUMENT FOUND |
| P | | IRON PIPE FOUND |
| B | | IRON BAR FOUND |
| RW | | R.O.W. MONUMENT FOUND |
| ST | | STONE FOUND |
| RR | | RAILROAD SPIKE FOUND |
| LN | | LARGE NAIL (TRAVERSE) |
| B | | IRON BAR (TRAVERSE) |
| SS | | CROSS (TRAVERSE) |
| PK | | PK NAIL (TRAVERSE) |
| 1 | | INDIVIDUAL OWNERSHIP PARCEL (IOP) |
| 3 | | SUBDIVISION LOT NUMBER |
| x | | FENCE |
| 2"G | | UNDERGROUND UTILITIES |
| | | FLOWLINE OF CREEK OR DITCH |

- | | |
|------|------------------------|
| | GUARD RAIL |
| + | TREE |
| | BUSH |
| WV | UTILITY METER OR VALVE |
| SH | SPRINKLER HEAD |
| SV | SPRINKLER VALVE |
| PP | POWER POLE |
| PP | POWER POLE & GUY |
| | STREET SIGN |
| | FIRE HYDRANT |
| x | LIGHT STANDARD |
| VENT | MAIL BOX |
| | HOUSE VENT |
| | TRAFFIC SIGNAL |
| | UTILITY BOX |
| LS | LOW SILL LOCATION |

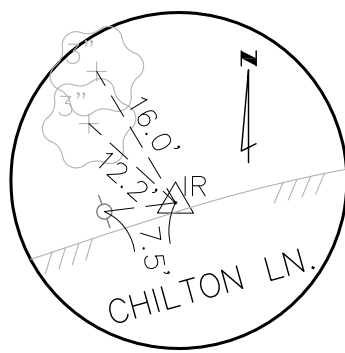
REFERENCE TIES - CHILTON



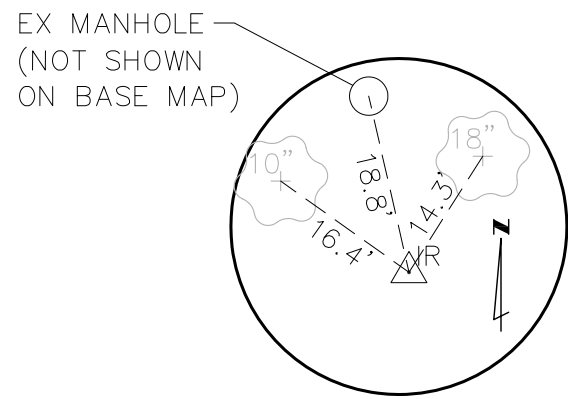
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IRON ROD W/ CAP
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E 845146.1579
ELEV 563.31
NOT TO SCALE



REFERENCE TIE
CONTROL POINT #200
IRON ROD W/ CAP
N 1028786.5119
E 844980.7573
ELEV 563.46
NOT TO SCALE



REFERENCE TIE
CONTROL POINT #207
IRON ROD W/ CAP
N 1028600.4425
E 844984.2691
ELEV 561.74
NOT TO SCALE



REFERENCE TIE
CONTROL POINT #208
IRON ROD W/ CAP
N 1028308.6559
E 845002.5002
ELEV 552.19
NOT TO SCALE



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ILINC Engineering Incorporated
MO Certificate of Authority
2000152967
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

Chilton Culvert Rehabilitation
Creve Coeur, St Louis County, Missouri

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Professional Engineer Seal
Mark Edward Meyer
2000150043

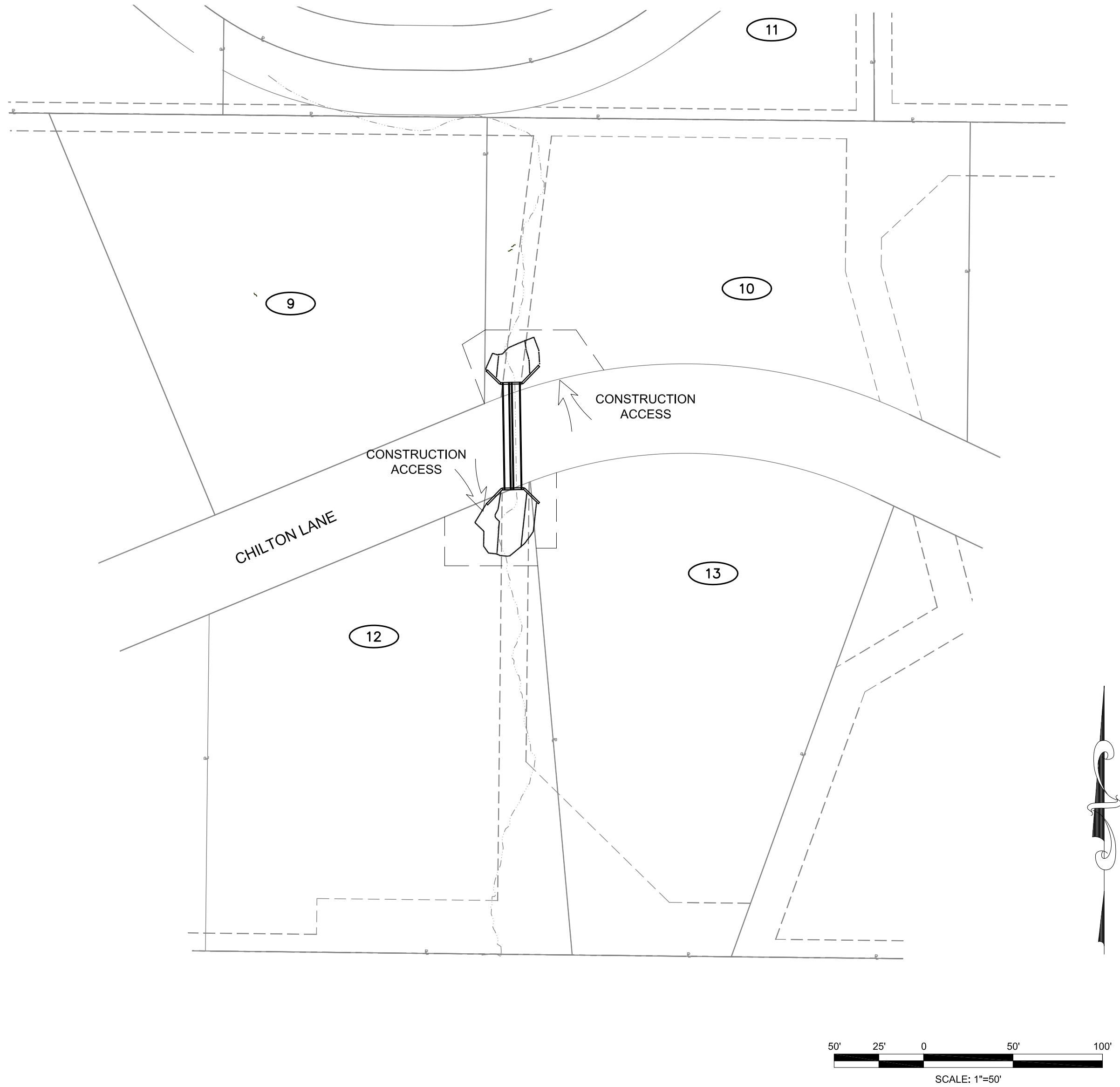
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Project No. 1207
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Drawn: AMO
Checked: TPD
Approved: MEM
Sheet Title:

NOTES AND
LEGEND

Sheet Number:



9	Gerald A. & Jaculin B. Wankum	3 Chilton Lane	18N620194
10	Peter I. Barg & Abigail Kelman Barg	4 Chilton Lane	18N620215
11	Peter I. Barg & Abigail Kelman Barg	6 Alden Lane	18N640015
12	Marc Wallis & Gina Michael Wallis	13 Chilton Lane	18N620138
13	Gupta Family Limited Partnership	12 Chilton Lane	18N620149



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16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

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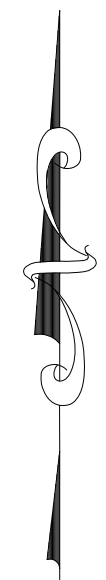
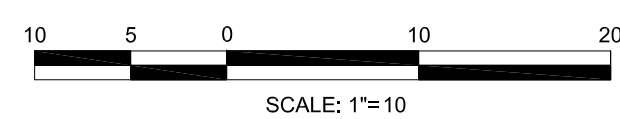
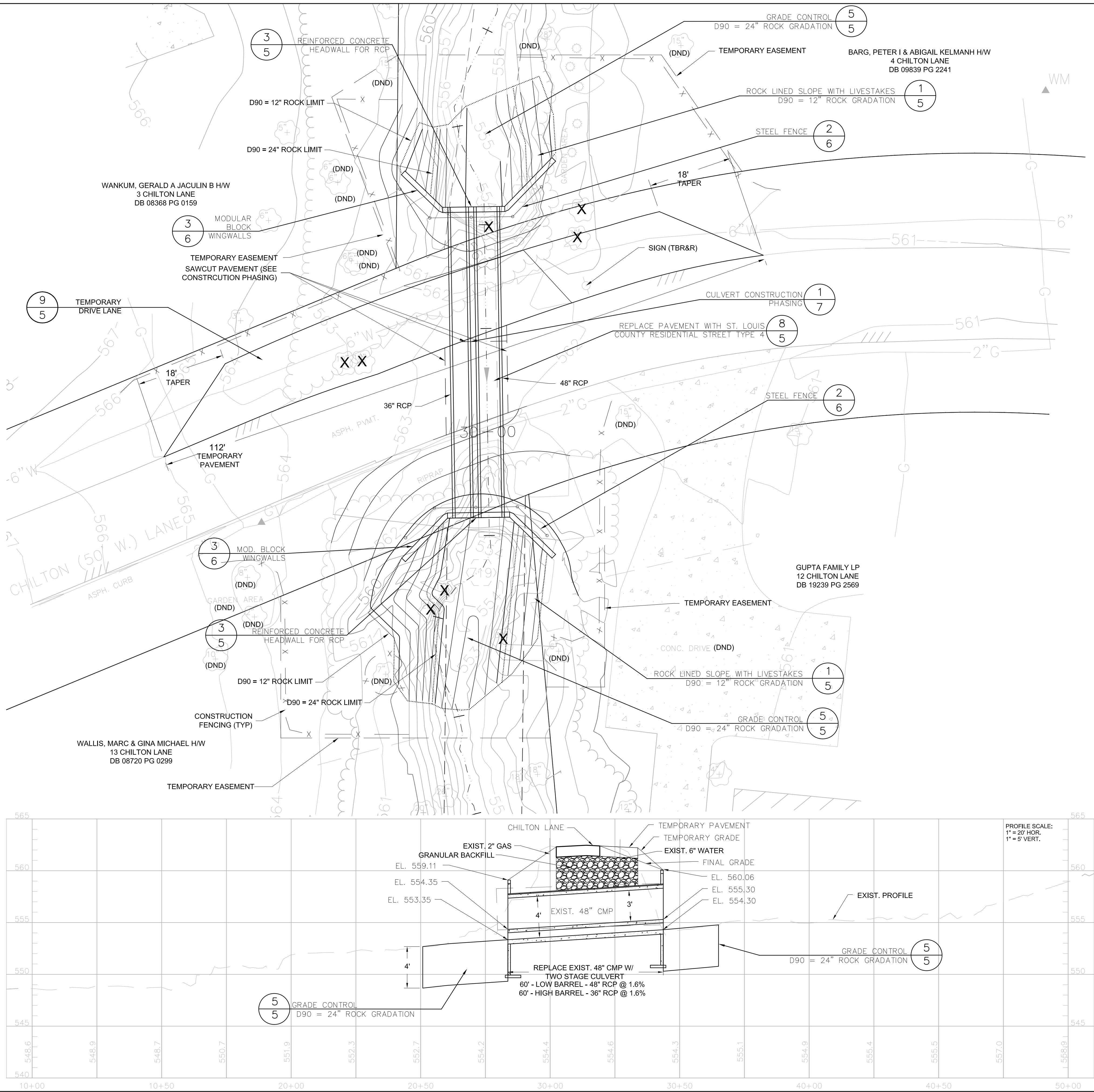
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OVERALL PLAN

Sheet Number:

3 OF 9



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MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

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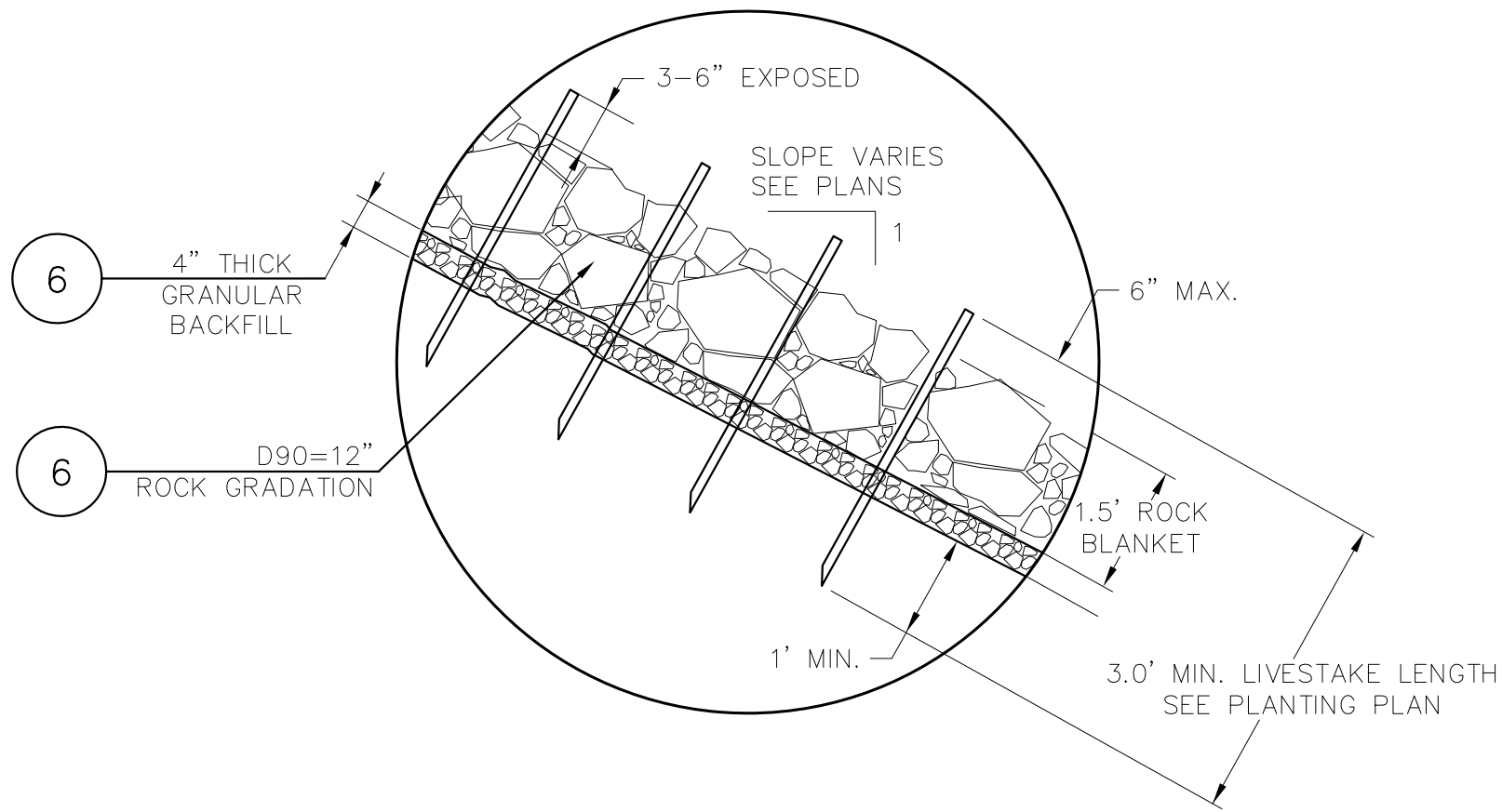
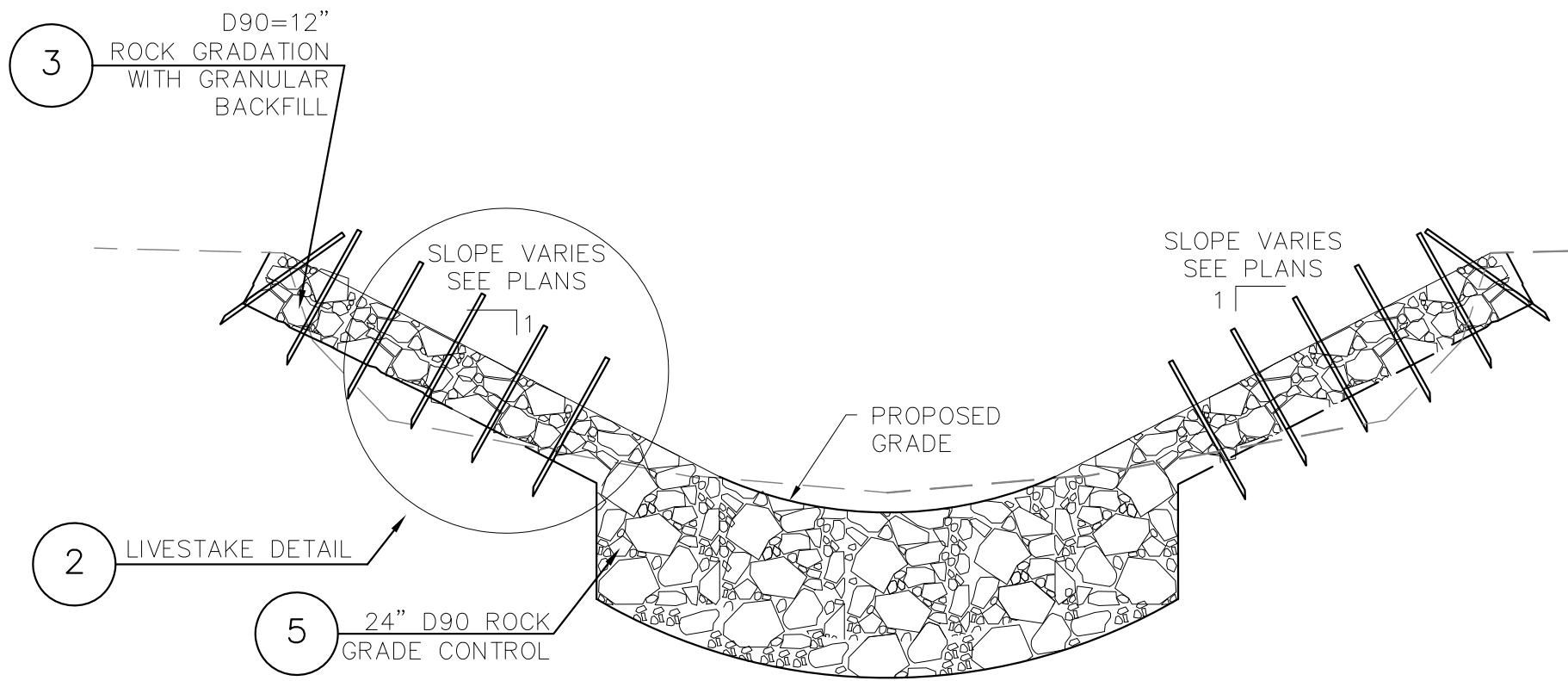
PLAN AND PROFILE

Sheet Number:

Chilton_005_Details

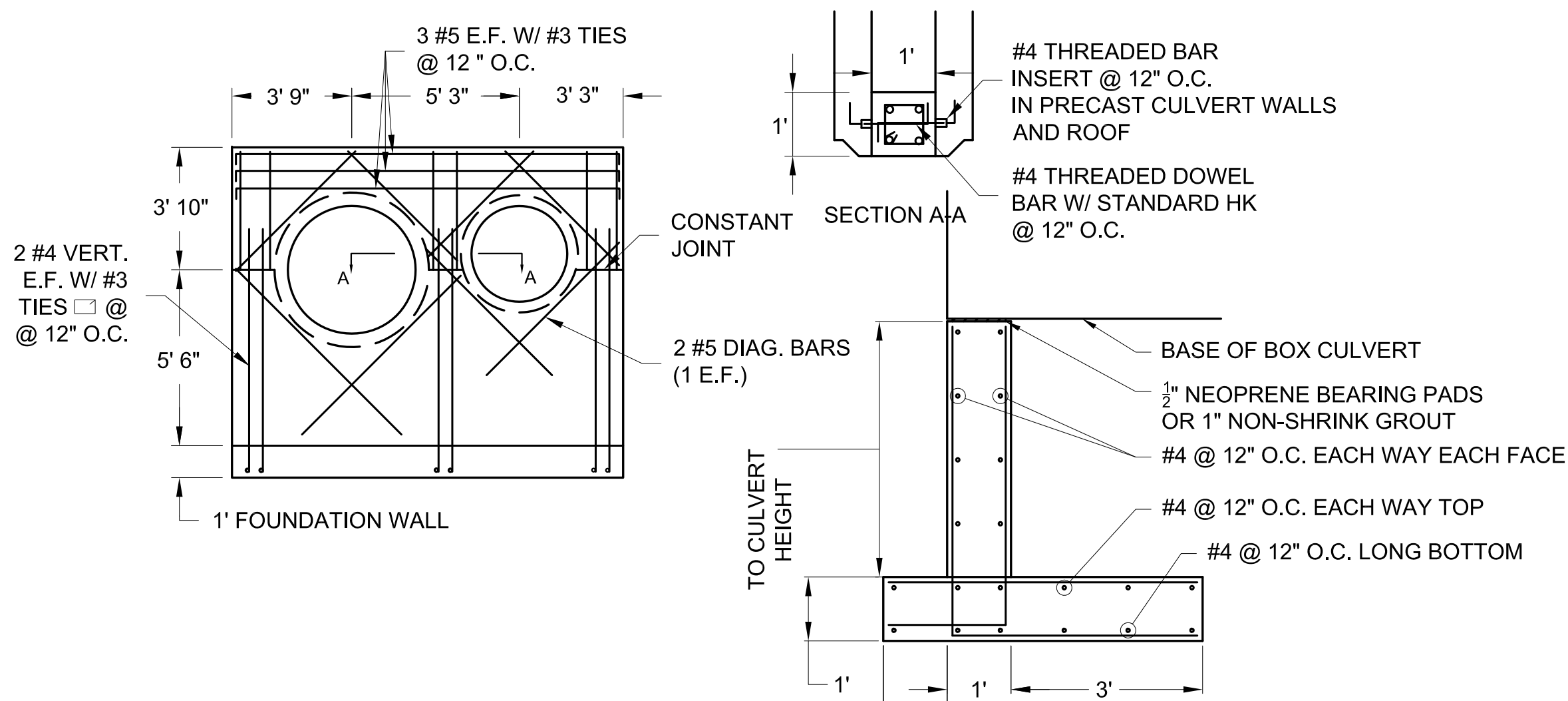
10/16/2012

Path: P:\1207 - Creve Coeur - Middlebrook_Chilton-Autocad-Plans.dwg
Plotted on: 10/16/12 @ 11:30:17AM by Amy



1 ROCK LINED SLOPE WITH LIVESTAKES
D90 = 12" ROCK GRADATION NTS

2 LIVESTAKE DETAIL NTS



3 REINFORCED CONCRETE HEADWALL FOR RCP NTS

4 NOT USED

NOTES:

1. Rock shall be hard, durable, angular in shape and resist weathering. Rock shall not contain shale. Neither breadth nor thickness of a single stone shall be less than 1/3 its length. Rock shall be well graded. The rock shall contain fines in sufficient quantities to fill voids while allowing point-to-point contact between rocks. Rock suspended in a matrix of fines shall not be allowed. THERE SHALL BE NO VISIBLE VOIDS IN ROCK STRUCTURES.

2. FOR 24" D90 ROCK
70% of rock shall be 7" or larger.
50% of rock shall be 12" or larger.
30% of rock shall be 19" or larger.
10% of rock shall be 24" or larger.

3. FOR 12" D90 ROCK
70% of rock shall be 3.5" or larger.
50% of rock shall be 7" or larger.
30% of rock shall be 10" or larger.
10% of rock shall be 12" or larger.

4. GRANULAR BACKFILL
MSD Type 1 bedding shall be used for the designated granular backfill.

ROCK GRADATION TABLE
D 90 = 12"

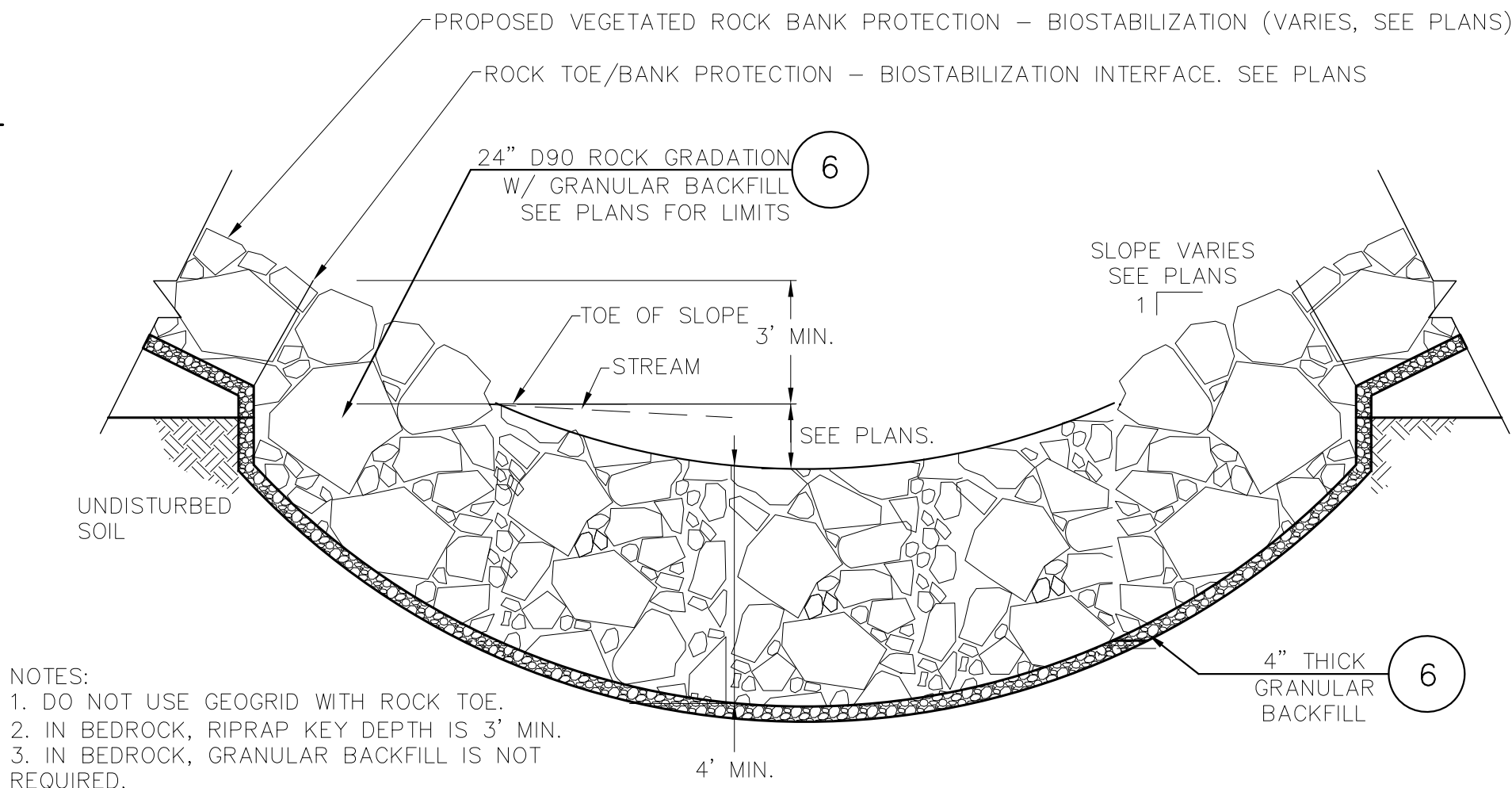
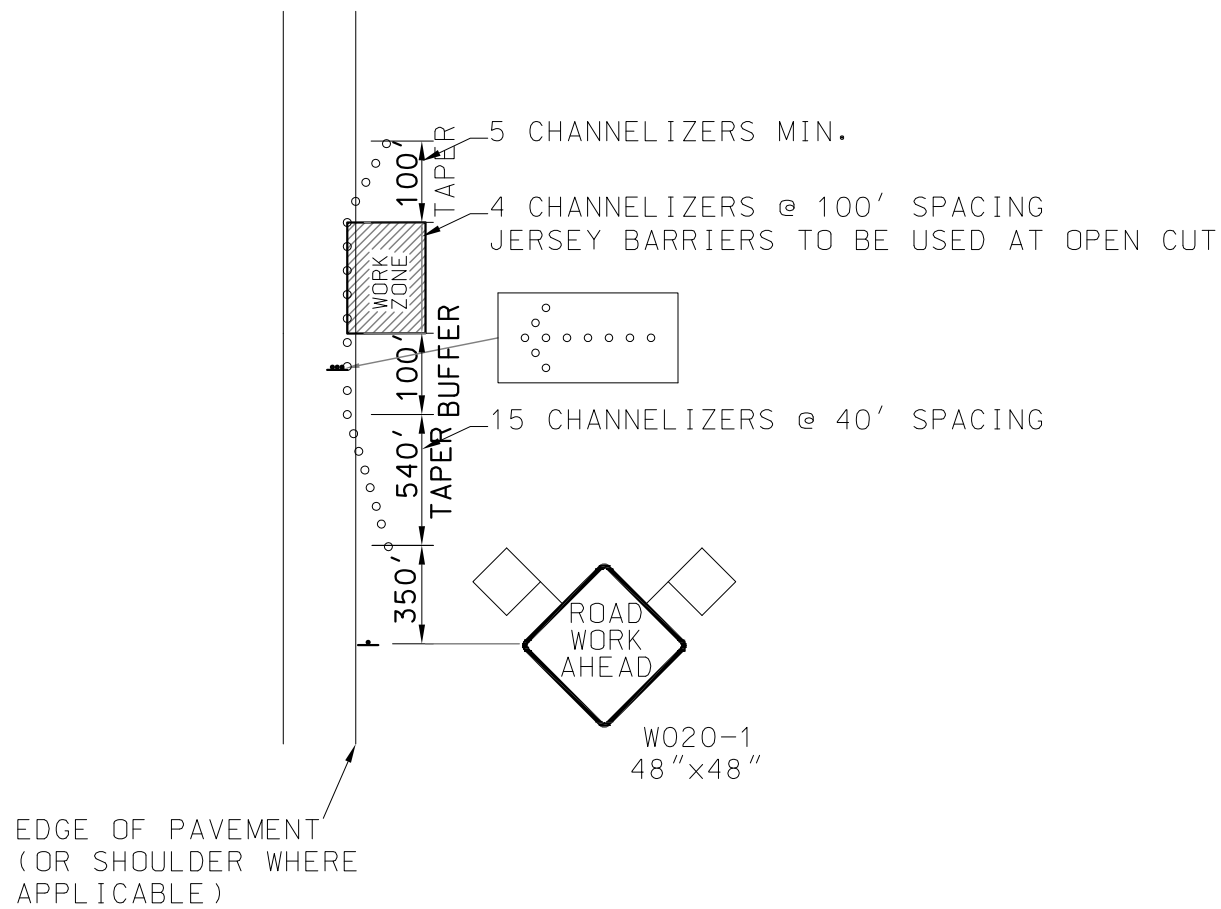
RIPRAP ROCK SIZE (inches)	PERCENT PASSING
0.001	5
0.04	10
1.64	15
3.5	30
7	50
10	70
11.5	85
12	90

ROCK GRADATION TABLE
D 90 = 24"

RIPRAP ROCK SIZE (inches)	PERCENT PASSING
0.001	5
0.04	10
3.29	15
7	30
12	50
19	70
23	85
24	90

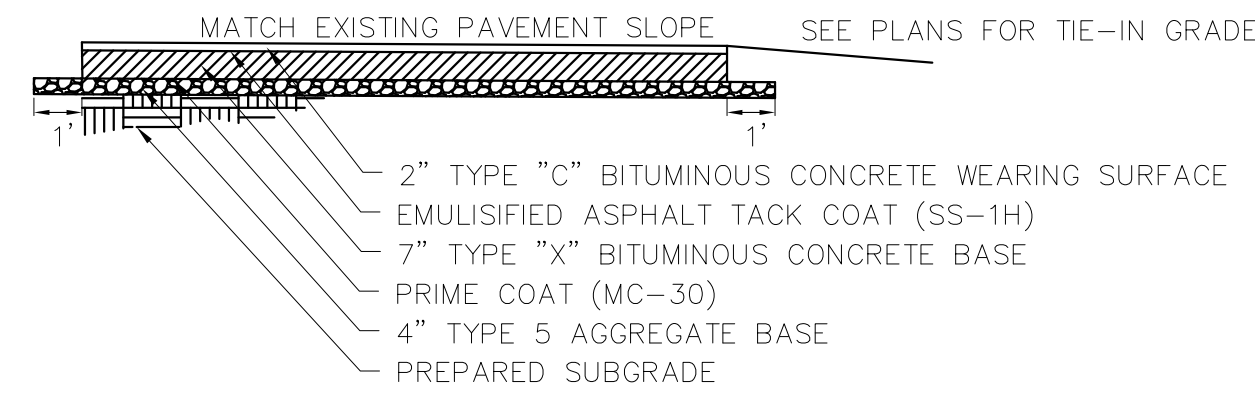
6 ROCK GRADATIONS NTS

7 TRAFFIC CONTROL NTS

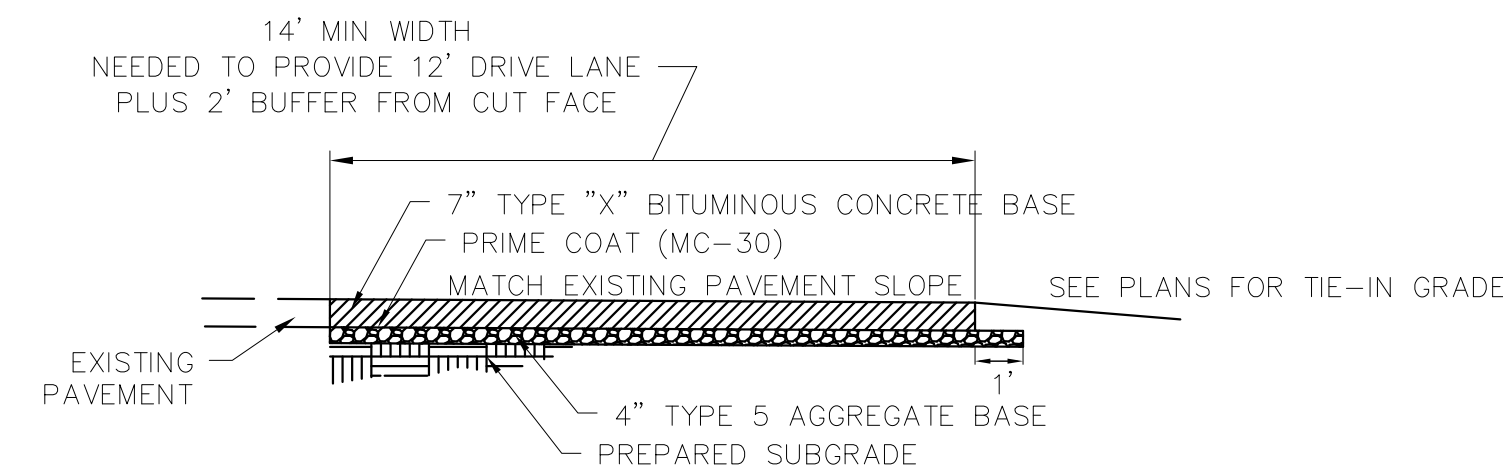


NOTES:
1. DO NOT USE GEOGRID WITH ROCK TOE.
2. IN BEDROCK, RIPRAP KEY DEPTH IS 3' MIN.
3. IN BEDROCK, GRANULAR BACKFILL IS NOT REQUIRED.
4. FILTER FABRIC IS NOT AN ACCEPTABLE SUBSTITUTE FOR GRANULAR BACKFILL.
5. WHERE ROCK TOE ADJOINS GRADE CONTROL CHANNEL, THE GRANULAR BACKFILL LAYER IS NOT REQUIRED ON THE ADJOINING SIDE.

5 ROCK GRADE CONTROL
D90 = 12" ROCK GRADATION NTS



8 TYPICAL PAVEMENT SECTION NTS



9 TEMPORARY TYPICAL PAVEMENT SECTION NTS



ILINC Engineering Incorporated
MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
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Chilton Culvert Rehabilitation
Creve Coeur, St Louis County, Missouri

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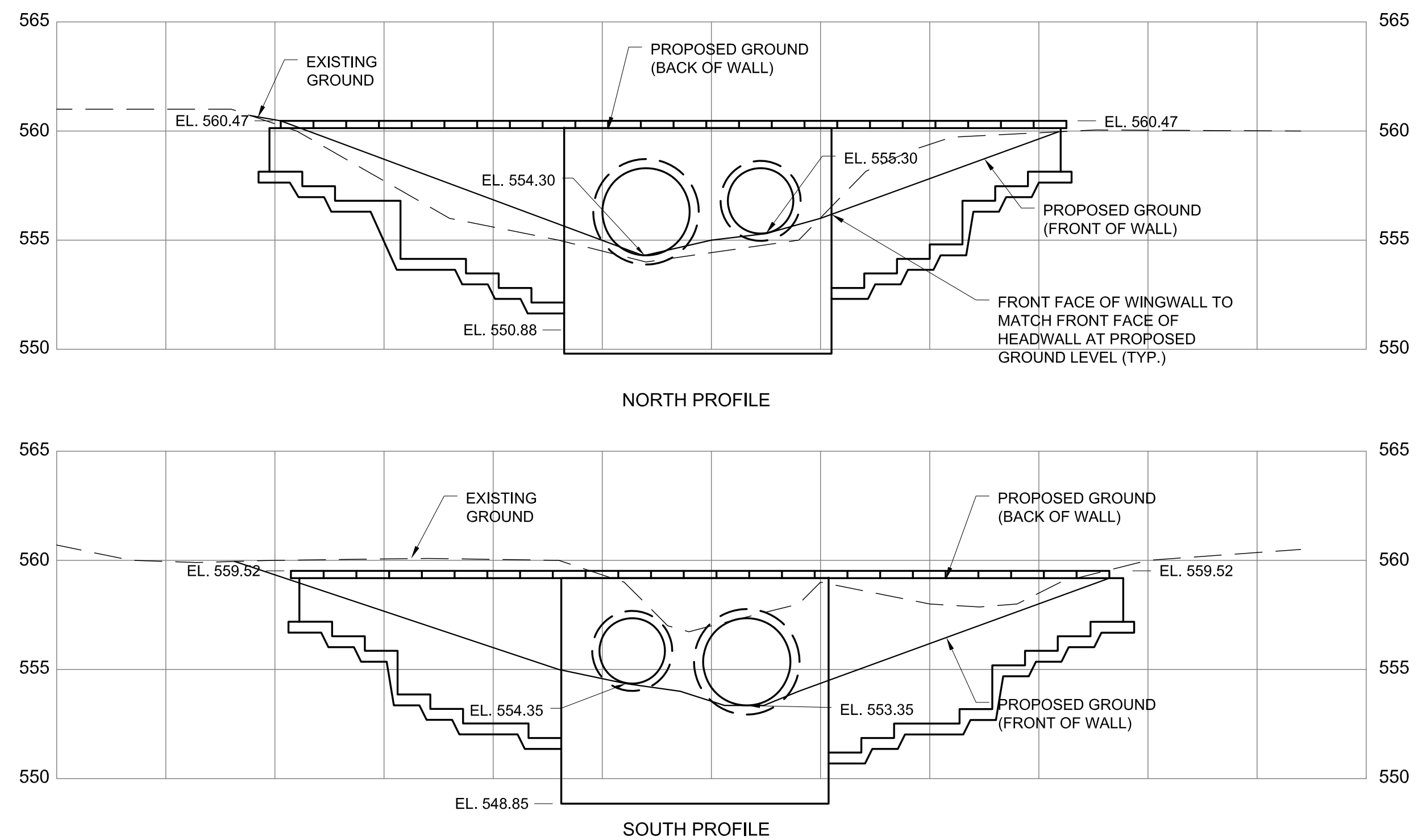
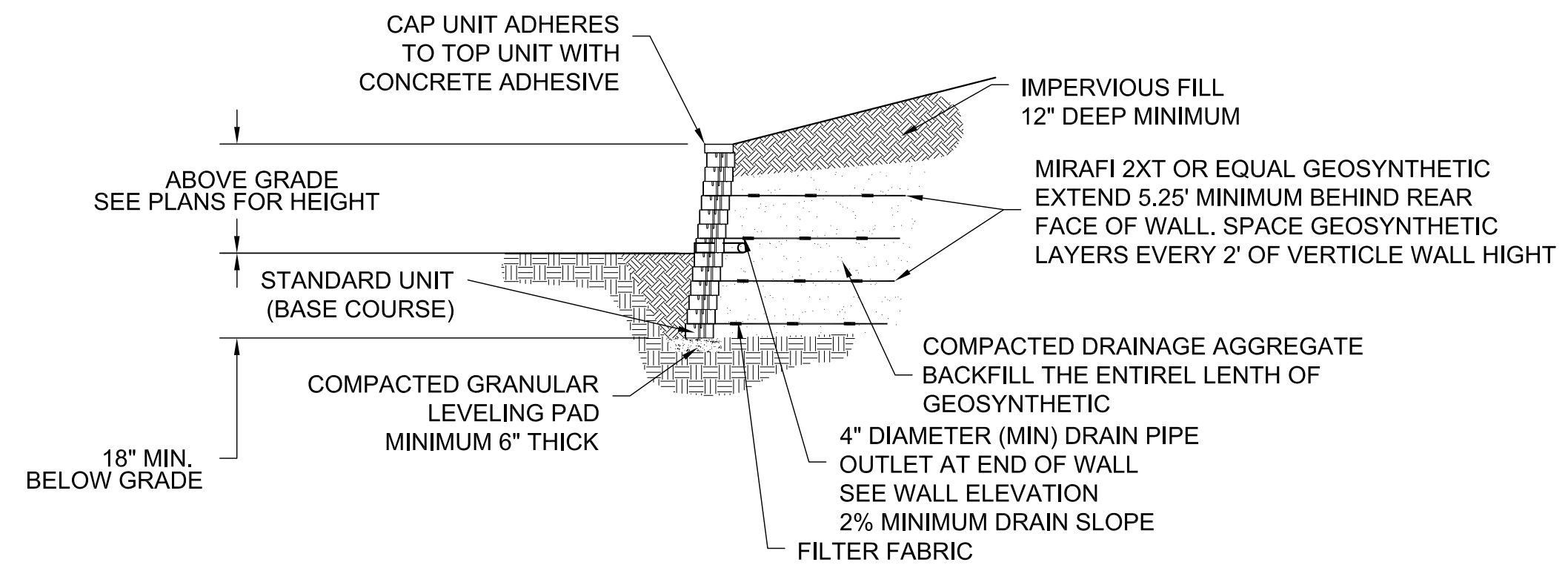
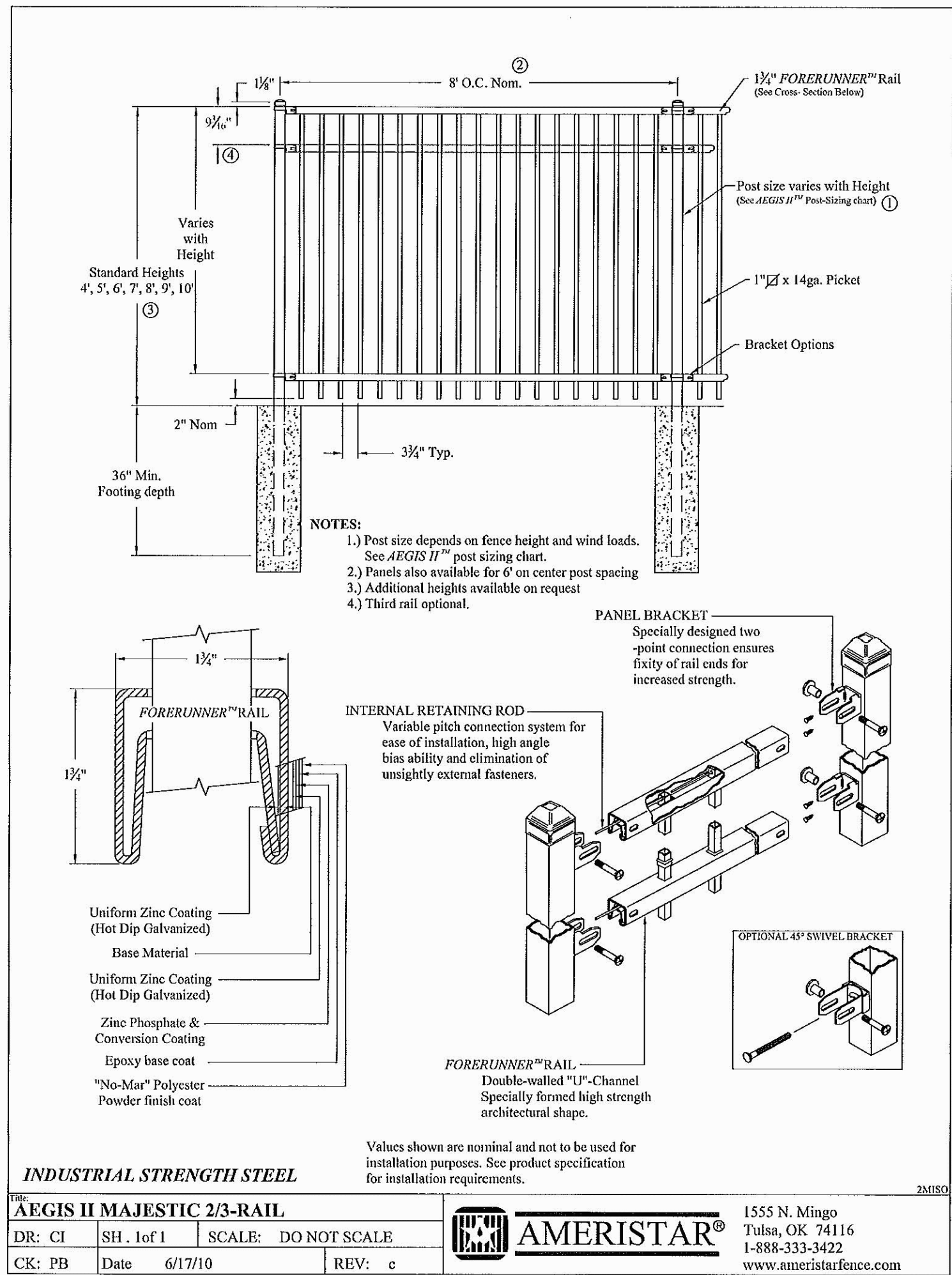
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DETAILS

Sheet Number:

5 OF 9



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ILINC Engineering Incorporated
 MO Certificate of Authority
 # 2000152987
 16253 Swingley Ridge Rd.
 Suite 100
 Chesterfield, MO 63017
 Phone (636) 777-3000
 Fax (314) 432-5812

Chilton Culvert Rehabilitation Creve Coeur, St Louis County, Missouri

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 Mark Edward Meyer
 2000150043

Expiration Date: Dec. 31, 2012

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Project No. 1207
 Designed: TPD
 Drawn: AMO
 Checked: TPD
 Approved: MEM
 Sheet Title:

DETAILS

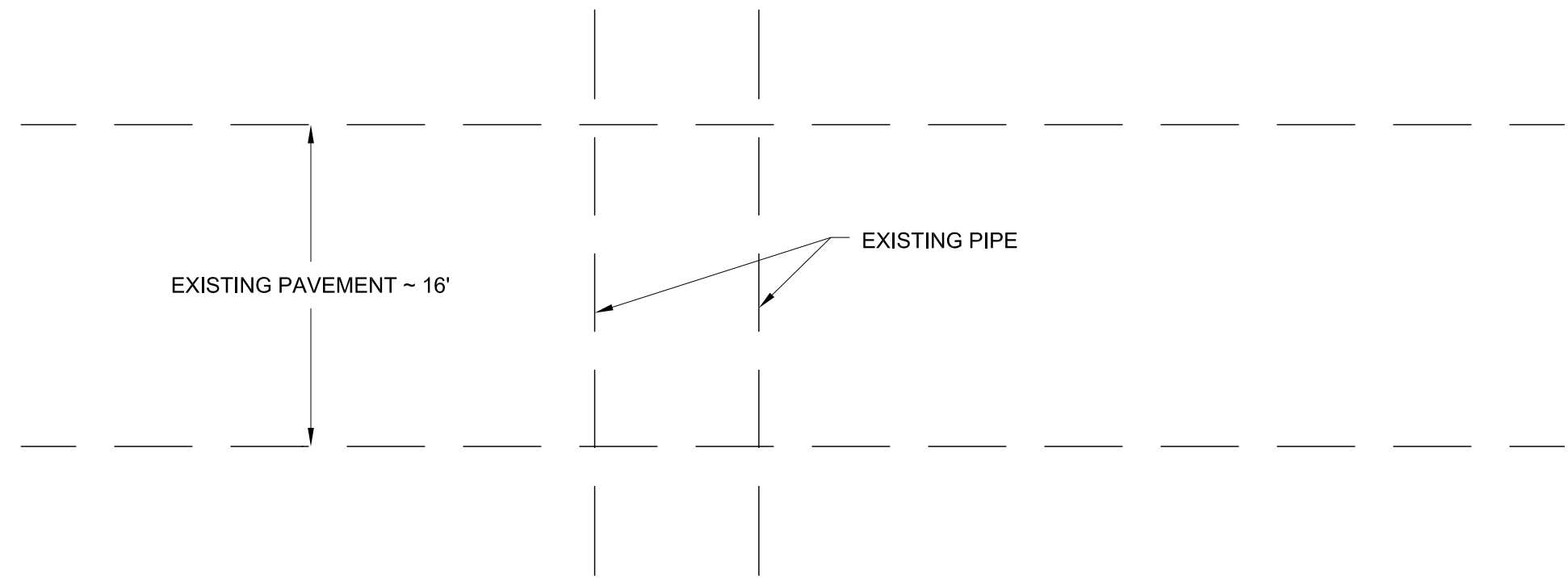
Sheet Number:

6 OF 9

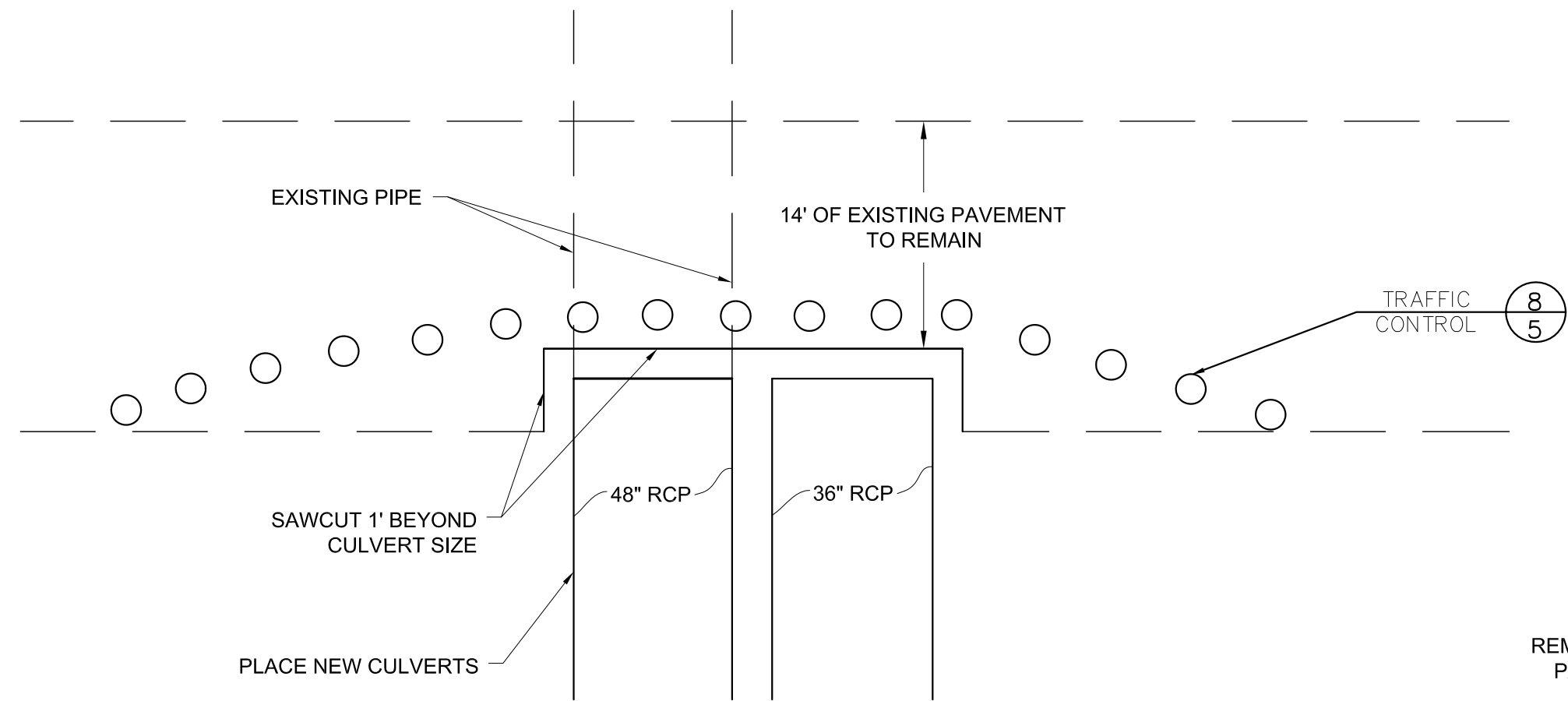
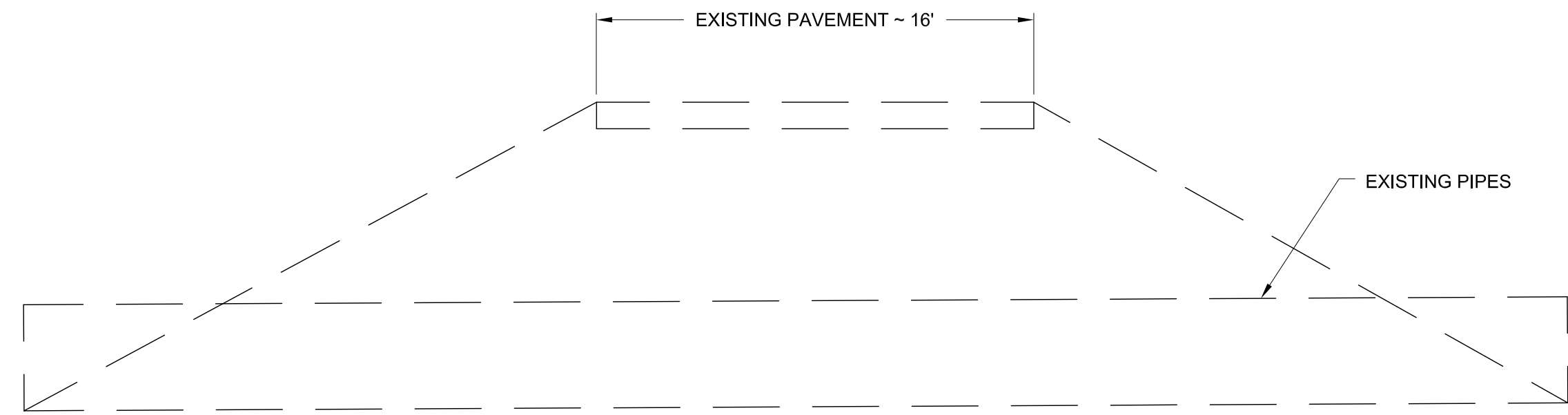
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10/16/2012

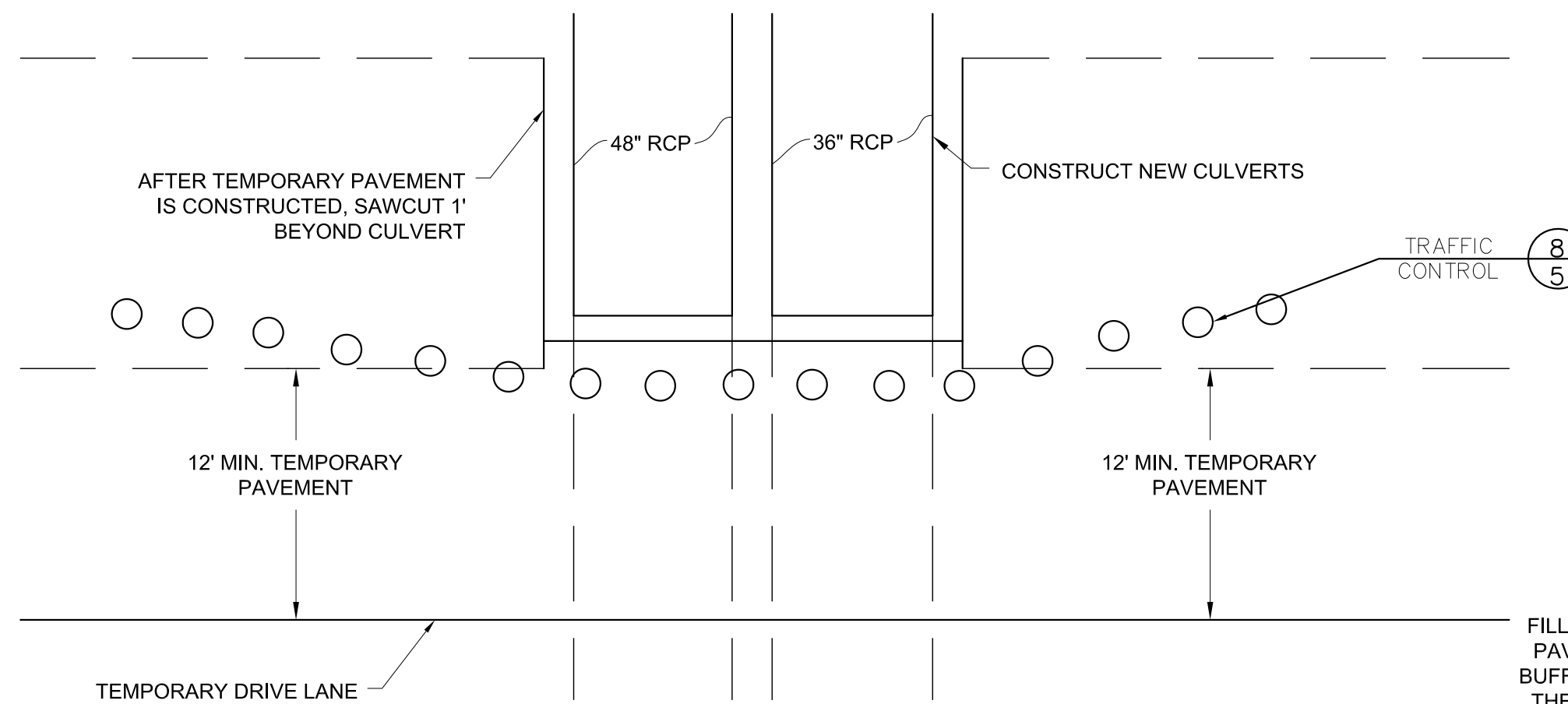
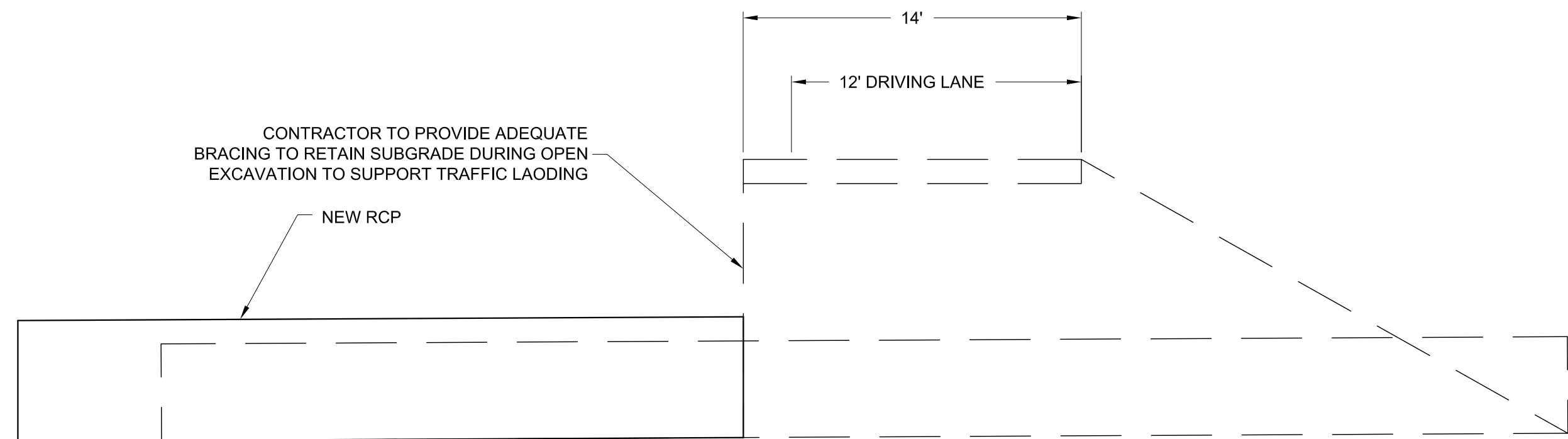
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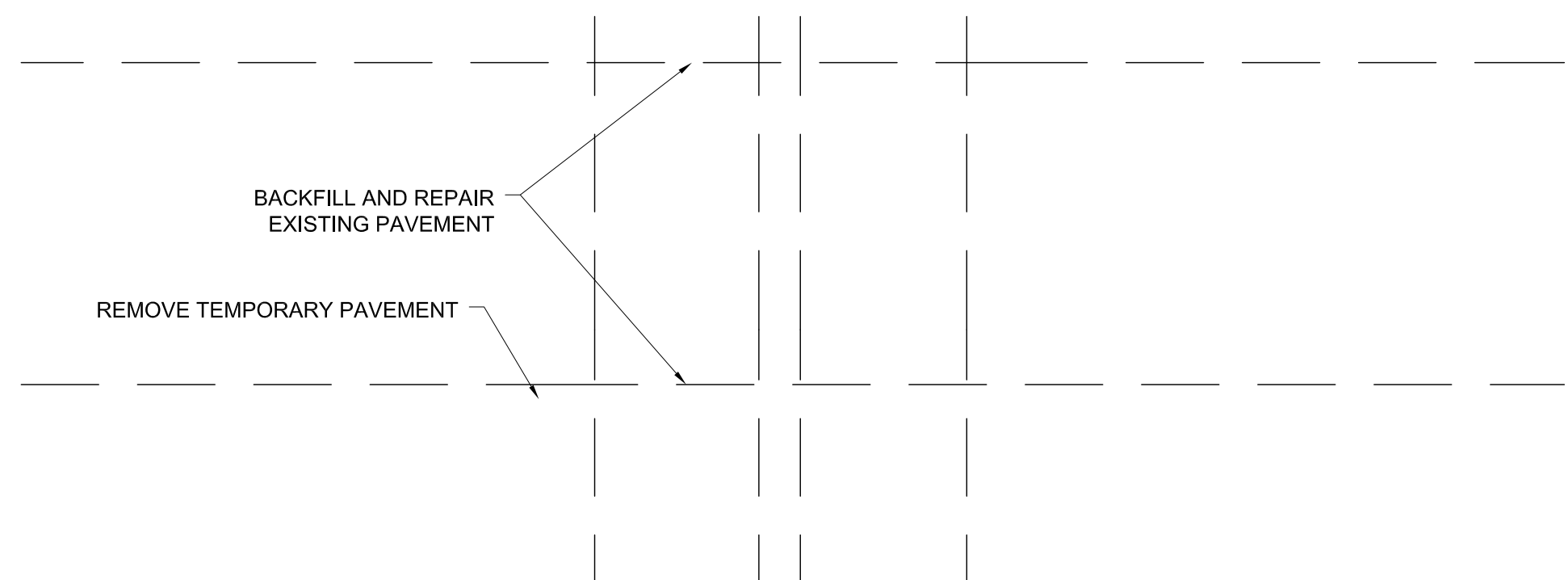
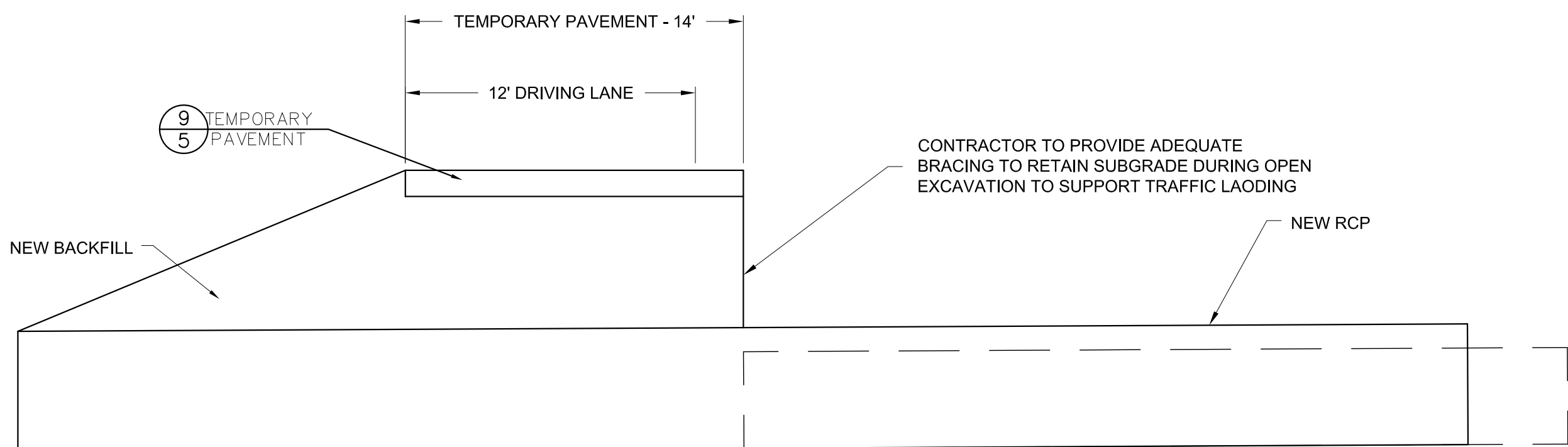
EXISTING CONDITION



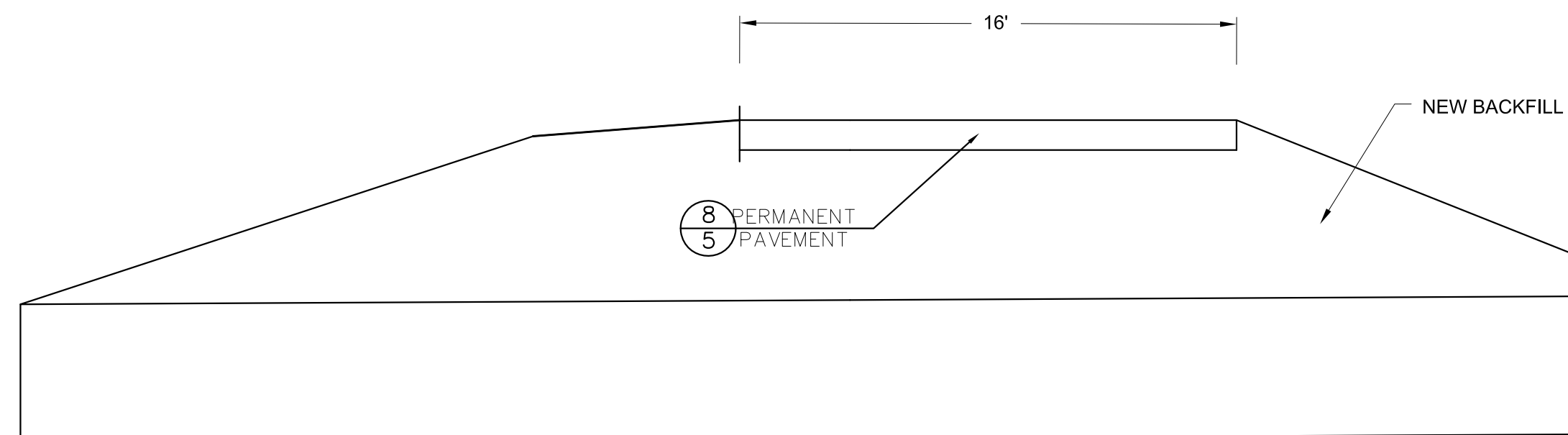
PHASE 1:
REMOVE AND EXCAVATE ALL BUT 14' OF EXISTING PAVEMENT. REMOVE AND REPLACE EXISTING CULVERT WITH NEW CULVERTS.



PHASE 2:
FILL OVER NEW CULVERTS AND PLACE TEMPORARY PAVEMENT TO PROVIDE 12' DRIVE LANE PLUS 2' OF BUFFER PAVEMENT WIDTH FROM CUT FACE. REMOVE THE EXISTING PAVEMENT, BACKFILL, AND EXISTING CULVERT. REPLACE WITH NEW CULVERTS.



PHASE 3:
BACKFILL OVER NEW CULVERTS AND REPLACE PAVEMENT. REMOVE TEMPORARY PAVEMENT AND GRADE TO FINISH GRADES.



1 CULVERT CONSTRUCTION PHASING

NTS



INTUITION
LOGIC

ILINC Engineering Incorporated
MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

Chilton Culvert Rehabilitation Creve Coeur, St Louis County, Missouri

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Mark Edward Meyer
2000150043

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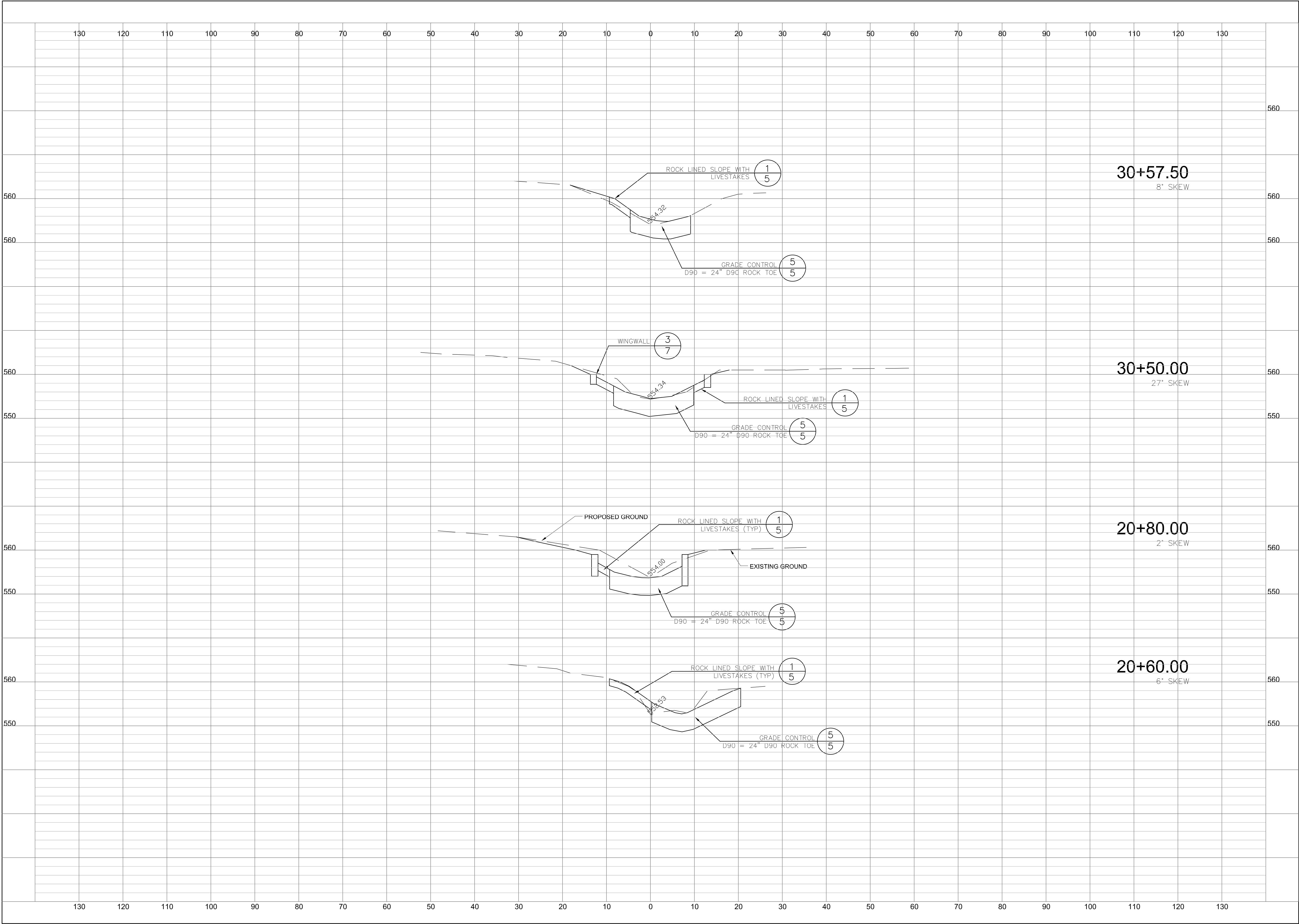
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Sheet Number:

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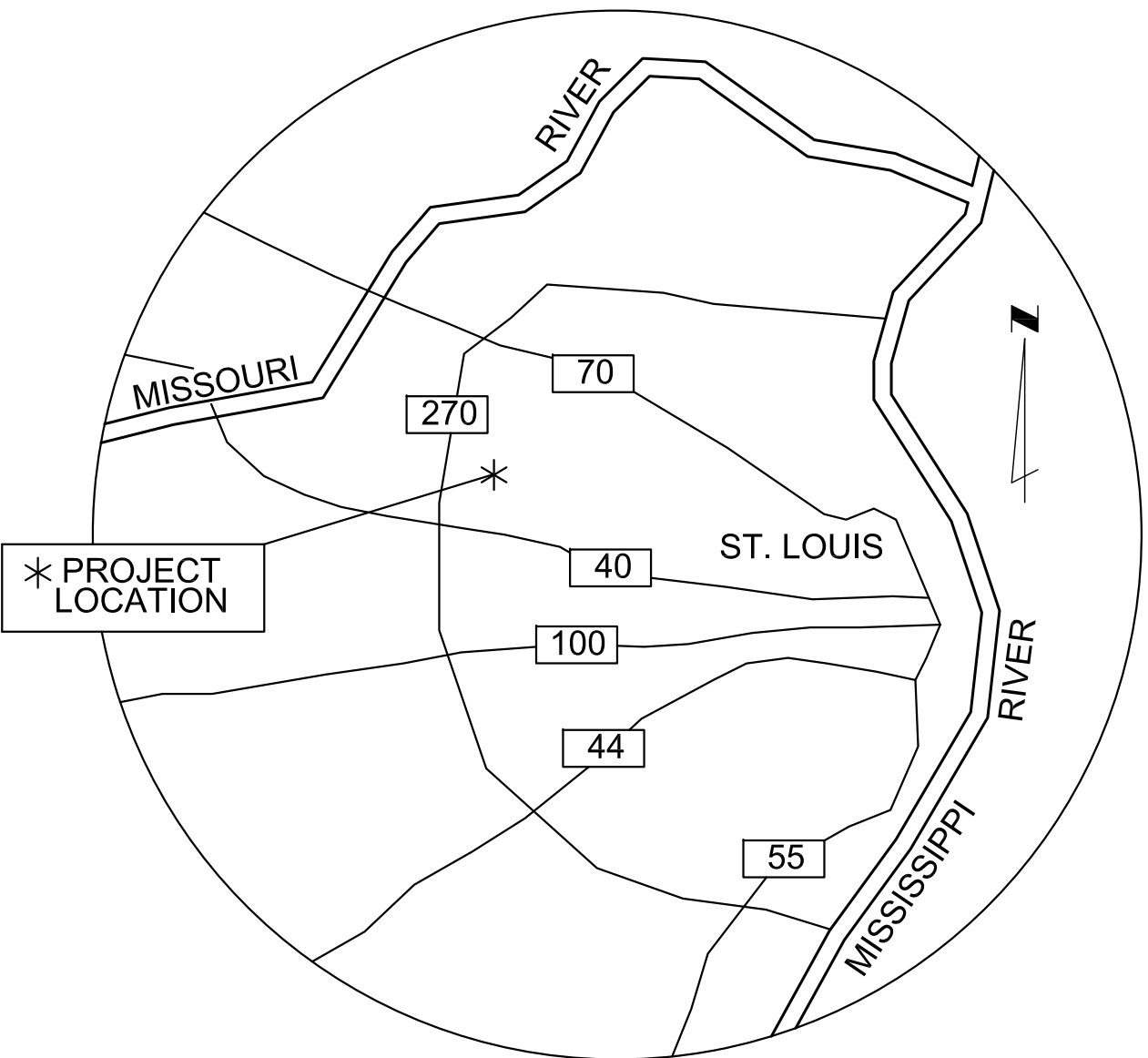
Project No. 1207
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Sheet Title:

CROSS SECTIONS

Sheet Number:
9 OF 9

Middlebrook Culvert Rehabilitation

CITY OF CREVE COEUR, MISSOURI



LOCATION MAP

NOT TO SCALE

PROJECT TEAM

OWNER: CITY OF CREVE COEUR



300 N. New Ballas Road
Creve Coeur, Missouri 63141
(314) 432-6000

CIVIL ENGINEER:



16253 Swingley Ridge Road-Suite 100
St. Louis, MO 63017
(636) 777-3000
License No. 2000152987

SURVEYOR:



1751 Ashby Road
St. Louis, Missouri 63114
(314) 428-1414

BENCHMARKS:

MSD BENCHMARK:
13-77 563.08 — "L" ON SOUTHWEST CORNER OF CAPSTONE FOR LOW WALL AT EXTREME EAST END OF STEPS AT SOUTH ENTRANCE, 30' DIRECTLY SOUTH OF CORNER STONE INSCRIBED (5721-1961) AT SOUTHEAST CORNER OF TEMPLE ISRAEL; NORTHEAST CORNER OF SPOEDE AND LADUE ROADS

PROJECT BENCHMARK 01:
"SQUARE" CUT IN THE NORTHWEST CORNER OF A CONCRETE DRIVEWAY APRON LOCATED AT #12 CHILTON LANE.
ELEV.=561.72

PROJECT BENCHMARK 02:
"SQUARE" CUT IN THE NORTHEAST CORNER OF THE SOUTH CONCRETE HEADWALL OF A CULVERT LOCATED AT ALDEN LANE.
ELEV.=561.95

SHEET INDEX:

- 1 COVER
- 2 NOTES AND LEGEND
- 3 OVERALL PLAN
- 4 PLAN AND PROFILE
- 5-7 DETAILS
- 8 PLANTING PLAN
- 9 CROSS SECTIONS

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Mark Edward Meyer, P.E.
E-2000150043

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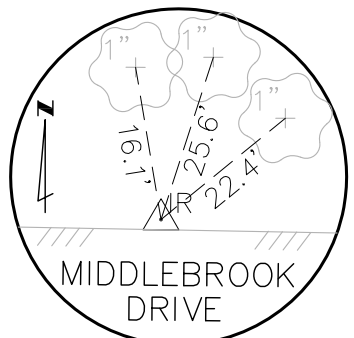
CONSTRUCTION & GRADING NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A SET OF "APPROVED" ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION.
2. ANY DEVIATION FROM THESE DESIGN PLANS MAY CAUSE THE WORK TO BE UNACCEPTABLE.
3. ANY UNANTICIPATED CONDITIONS ENCOUNTERED DURING THE CONSTRUCTION PROCESS SHALL BE IDENTIFIED IN WRITING TO THE OWNER/ENGINEER IMMEDIATELY.
4. THE STREETS SURROUNDING THESE PROJECT SITES AND ANY STREET USED FOR CONSTRUCTION ACCESS THERETO SHALL BE KEPT FREE FROM MUD AND CONSTRUCTION DEBRIS AND SHALL BE CLEANED THROUGHOUT THE DAY.
5. ALL TRASH AND DEBRIS ON SITE, EITHER EXISTING OR FROM CONSTRUCTION, MUST BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.
6. NO EXCAVATION SHALL BE MADE SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PROPERTY OR ANY PUBLIC OR PRIVATE STREET WITHOUT SUPPORTING AND PROTECTING SUCH PUBLIC OR PRIVATE STREET OR PROPERTY FROM SETTLING, CRACKING, OR OTHER DAMAGE.
7. ALL GRADES SHALL BE WITHIN 0.2 FEET, PLUS OR MINUS, OF THOSE SHOWN ON THE PLAN. GRADING TO BE REVIEWED AND APPROVED BY OWNERS REPRESENTATIVE.
8. CONTRACTOR IS RESPONSIBLE FOR MONITORING GRADING OPERATION AND ACCURACY OF FINAL ROUGH GRADES. CONTACT ENGINEER OF ANY DISCREPANCIES AFFECTING FINAL GRADING BALANCE.
9. SITE CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS PREPARED. CONTRACTOR SHALL VISIT SITE TO FAMILIARIZE THEMSELVES WITH THE CURRENT CONDITIONS.
10. ALL PROJECT COORDINATES AND ELEVATIONS ARE BASED ON PROJECT BENCHMARKS AS LISTED BELOW.
- PROJECT BENCHMARK 01:
"SQUARE" CUT NEAR THE NORTHWEST CORNER OF A CONCRETE DRIVEWAY APRON LOCATED AT #12 CHILTON LANE.
ELEV.=561.72
- PROJECT BENCHMARK 02:
"SQUARE" CUT IN THE NORTHEAST CORNER OF THE SOUTH CONCRETE HEADWALL OF A CULVERT LOCATED AT ALDEN LANE.
ELEV.=561.95
11. ALL EXISTING TOPOGRAPHY, UNDERGROUND UTILITIES, STRUCTURES AND ASSOCIATED FACILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS AND ELEVATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER FACILITIES, THE EXISTENCE OF WHICH ARE NOT PRESENTLY KNOWN.
12. CONTRACTOR IS TO VERIFY ALL EXISTING STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL AND STARTING WORK.

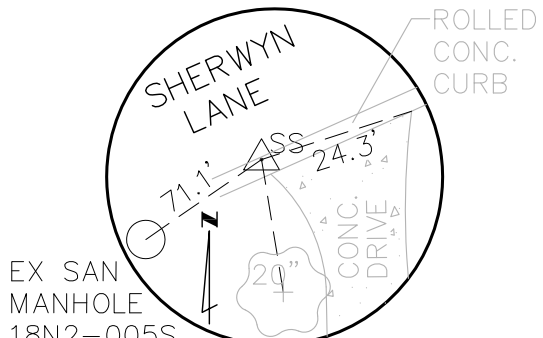


13. THE GENERAL CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PROVIDE CABLE TV, PHONE, ELECTRIC, GAS AND IRRIGATION SERVICES. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SITE LAYOUTS FOR THESE UTILITIES AND SHALL COORDINATE AND PROVIDE CONDUIT CROSSINGS AS REQUIRED. THIS COORDINATION SHALL BE CONSIDERED INCIDENTAL TO GENERAL CONTRACTOR WITH OWNER. ANY CONFLICTS IN UTILITIES SHALL BE CORRECTED BY THE GENERAL CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
14. BEFORE EXCAVATING OVER OR ADJACENT TO ANY EXISTING UTILITIES, CONTRACTOR SHALL NOTIFY THE OWNER OF SUCH UTILITIES TO ENSURE THAT PROTECTIVE WORK WILL BE COORDINATED AND PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER OF THE UTILITY INVOLVED. IF ANY EXISTING SERVICE LINES, UTILITIES AND UTILITY STRUCTURES WHICH ARE TO REMAIN IN SERVICE ARE UNCOVERED OR ENCOUNTERED DURING THIS OPERATION, THEY SHALL BE SAFEGUARDED, PROTECTED FROM DAMAGE AND SUPPORTED IF NECESSARY.
15. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS REGARDING PRIVATE UTILITIES ON THE PREMESIS, INCLUDING BUT NOT LIMITED TO IRRIGATION SYSTEM AND LIGHTING FACILITIES.
16. CONTRACTOR SHALL NOT REMOVE ANY TREE OR FENCE, UNLESS MARKED FOR REMOVAL ON THE PLANS WITHOUT PRIOR APPROVAL.
17. ALL APPLICABLE PROVISIONS OF THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT ARE HEREIN INCORPORATED BY REFERENCE.
18. THE CONTRACTOR, BY USING THESE PLANS FOR THEIR WORK, AGREE TO HOLD HARMLESS ILINC ENGINEERING, INC. THE CITY OF CREVE COEUR, MISSOURI, THEIR EMPLOYEES AND AGENTS AND THE OWNER WHILE ACTING WITHIN THE SCOPE OF THEIR DUTIES FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DAMAGES, AND THE COST OF DEFENSE ARISING OUT OF CONTRACTOR(S) PERFORMANCE OF THE WORK DESCRIBED HEREIN, BUT NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, HIS AGENTS, THE ENGINEER, HIS EMPLOYEES AND AGENTS.

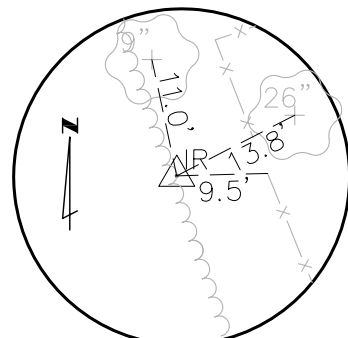
19. ALL "CLEARING AND GRUBBING" SHALL INCLUDE CLEARING OF TREES, STUMPS, BRUSH, FENCES, POSTS, MAILBOXES AND OTHER EXISTING SURFACE FEATURES AS NECESSARY BY THE CONTRACTOR TO PERFORM THE WORK SHOWN ON THE PLANS.
20. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE AND ORDERLY PASSAGE OF TRAFFIC AND PEDESTRIANS WHERE HIS/HER OPERATIONS ABUT PUBLIC THOROUGHFARES AND ADJACENT PROPERTY IN ACCORDANCE WITH LOCAL ORDINANCE AND ST LOUIS COUNTY REQUIREMENTS.
21. AREAS OUTSIDE THE R.O.W. LINE OR CONSTRUCTION LIMIT LINE IMPACTED BY OPERATIONS OF THE CONTRACTOR SHALL BE RETURNED TO THE STATE IT WAS FOUND PRIOR TO NEW CONSTRUCTION, EXCEPT WHERE NEW WORK IS SHOWN.
22. STREET PAVING AND CURBS TO REMAIN SHALL BE PROTECTED FROM DAMAGE AND IF DAMAGED, SHALL BE REPLACED PROMPTLY IN CONFORMANCE WITH THE MUNICIPALITY OR ST LOUIS COUNTY STANDARD.
23. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
24. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT ALONG LIMITS OF PROPOSED REMOVAL BEFORE COMMENCEMENT OF PAVEMENT REMOVAL.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE OWNER OF THE ROADWAY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH ST LOUIS COUNTY STANDARD SPECIFICATIONS. ALL TRAFFIC CONTROL WORK SHALL BE DONE IN ACCORDANCE WITH MUTCD AND CREVE COEUR.
27. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
28. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS BEFORE CONSTRUCTION BEGINS.
29. STANDARD CONSTRUCTION: ALL STORM AND SANITARY SEWER STRUCTURES ARE TO CONFORM TO THE STANDARD DETAILS AND CONSTRUCTION SPECIFICATIONS SHOWN IN THE CURRENT METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009.
30. PUBLIC SEWER MAINTENANCE: MAINTENANCE OF THE SEWERS DESIGNATED "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.
31. FUTURE DISTURBANCE NOTE FOR PROJECTS THAT DO NOT PROPOSE A BMP OR DETENTION:
STORMWATER MANAGEMENT NOTE:
LAND AREA DISTURBED = 0.30 ACRES
ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN P-XXXXXXX-XX)



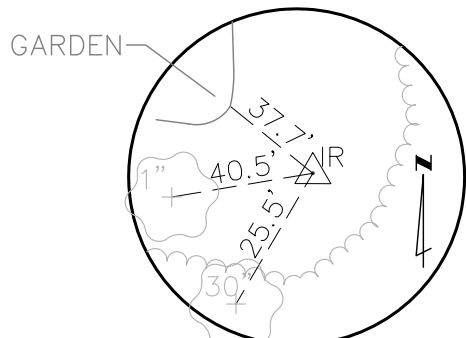
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ELEV 571.76
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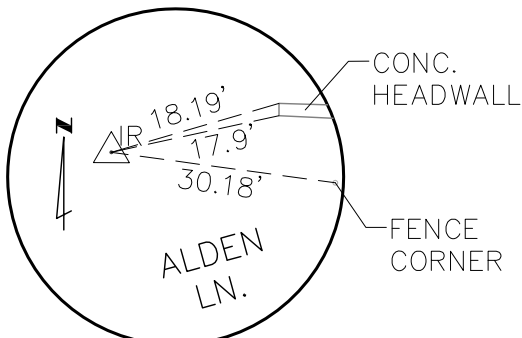
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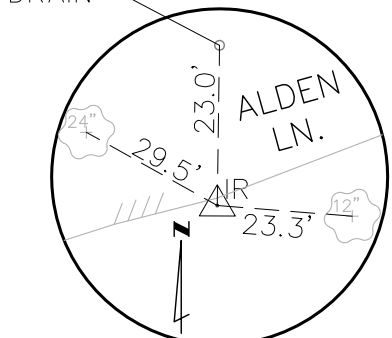
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ELEV 567.33
NOT TO SCALE



REFERENCE TIE
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E 845146.1579
ELEV 563.31
NOT TO SCALE



REFERENCE TIE
CONTROL POINT #200
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ELEV 563.46
NOT TO SCALE

ABBREVIATIONS

AI	AREA INLET
ATG	ADJUST TO GRADE
B.M.	BENCH MARK
CONC.	CONCRETE
CTV	CABLE TELEVISION
DND	DO NOT DISTURB
E	ELECTRIC
ELEV	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FES	FLARED END SECTION
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTIC
FT	FEET
G	GAS
GCI	GRATED CURB INLET
HGL	HYDRAULIC GRADE LINE
I.D.	INNER DIAMETER
IN	INCHES
IP	IRON PIN
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
PCB	PHONE CABLE BOX
PED	PEDESTAL
PPED	POWER PEDESTAL
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SAN	SANITARY
SMH	SANITARY MANHOLE
STA	STATION
T	TELEPHONE
TBR	TO BE REMOVED
TBR&R	TO BE REMOVED AND REPLACED
TBR&RBO	TO BE REMOVED AND REPLACED BY OTHERS
TBR&REL	TO BE REMOVED AND RELOCATED
TPED	TELEPHONE PEDESTAL
TVPED	TELEVISION PEDESTAL
TYP	TYPICAL
UIP	USE IN PLACE
W	WATER

LEGEND

R	-	RECORD
C	-	CALCULATED
1		SURVEY POINTS ESTABLISHED
100		SURVEY MONUMENTATION FOUND
xSS		CROSS FOUND
CM		CONCRETE MONUMENT FOUND
P		IRON PIPE FOUND
B		IRON BAR FOUND
RW		R.O.W. MONUMENT FOUND
ST		STONE FOUND
RR		RAILROAD SPIKE FOUND
LN		LARGE NAIL (TRAVERSE)
B		IRON BAR (TRAVERSE)
SS		CROSS (TRAVERSE)
PK		PK NAIL (TRAVERSE)
1		INDIVIDUAL OWNERSHIP PARCEL (IOP)
3		SUBDIVISION LOT NUMBER
x		FENCE
2"G		UNDERGROUND UTILITIES
		FLOWLINE OF CREEK OR DITCH

	GUARD RAIL
+	TREE
	BUSH
WV	UTILITY METER OR VALVE
SH	SPRINKLER HEAD
SV	SPRINKLER VALVE
PP	POWER POLE
PP	POWER POLE & GUY
-O-	STREET SIGN
+	FIRE HYDRANT
x	LIGHT STANDARD
MAIL BOX	MAIL BOX
HOUSE VENT	HOUSE VENT
TRAFFIC SIGNAL	TRAFFIC SIGNAL
UTILITY BOX	UTILITY BOX
LS	LOW SILL LOCATION



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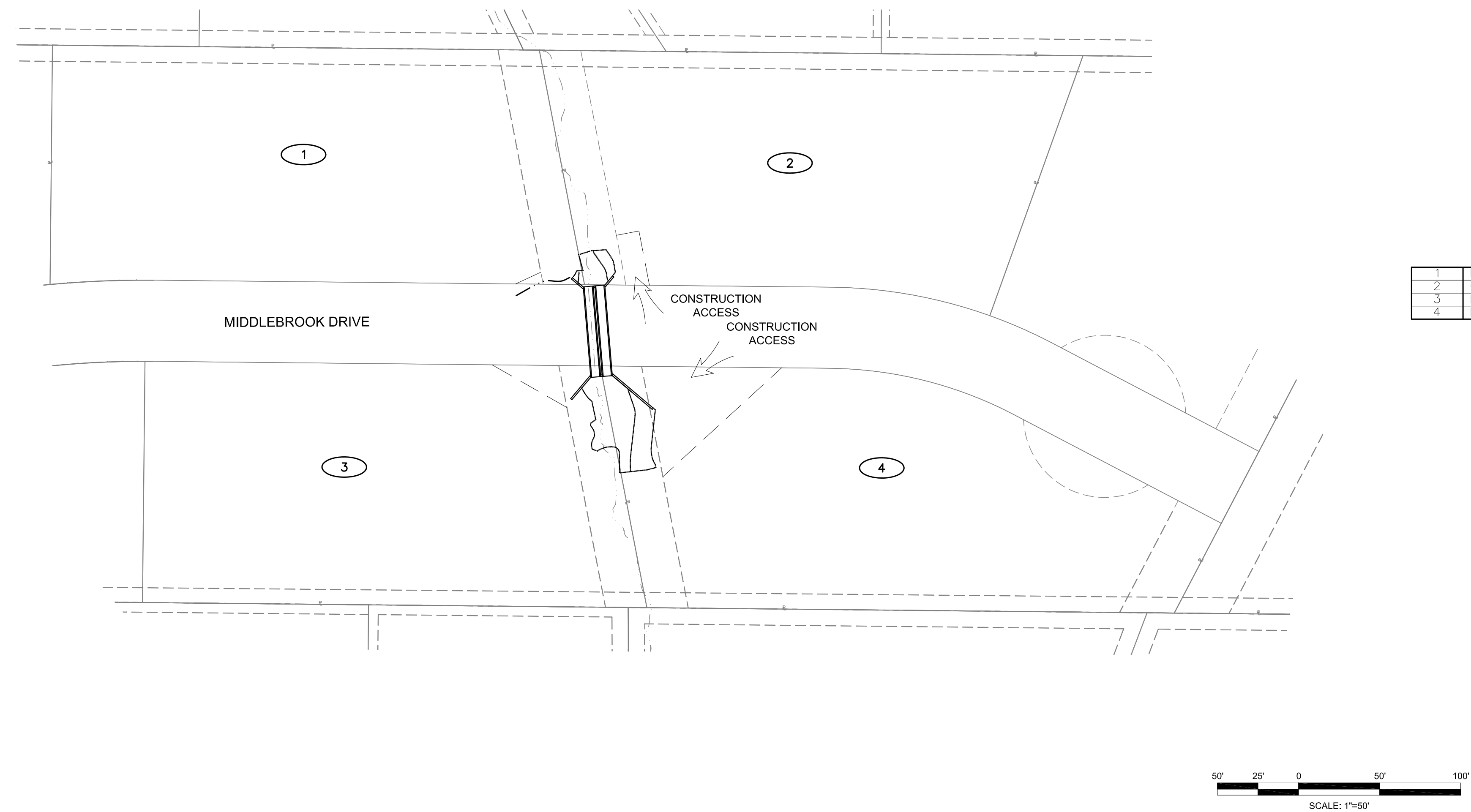
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1	Marc P. & Marcy H. Harstein, Trustees	3	Middlebrook Drive	18N640213
2	Gary & Kim Bussard	5	Middlebrook Drive	18M430444
3	Bernard L. & Linda L. Bearman Jr.	4	Middlebrook Drive	18N640433
4	Elizabeth Lane Sokolik	6	Middlebrook Drive	18M430501





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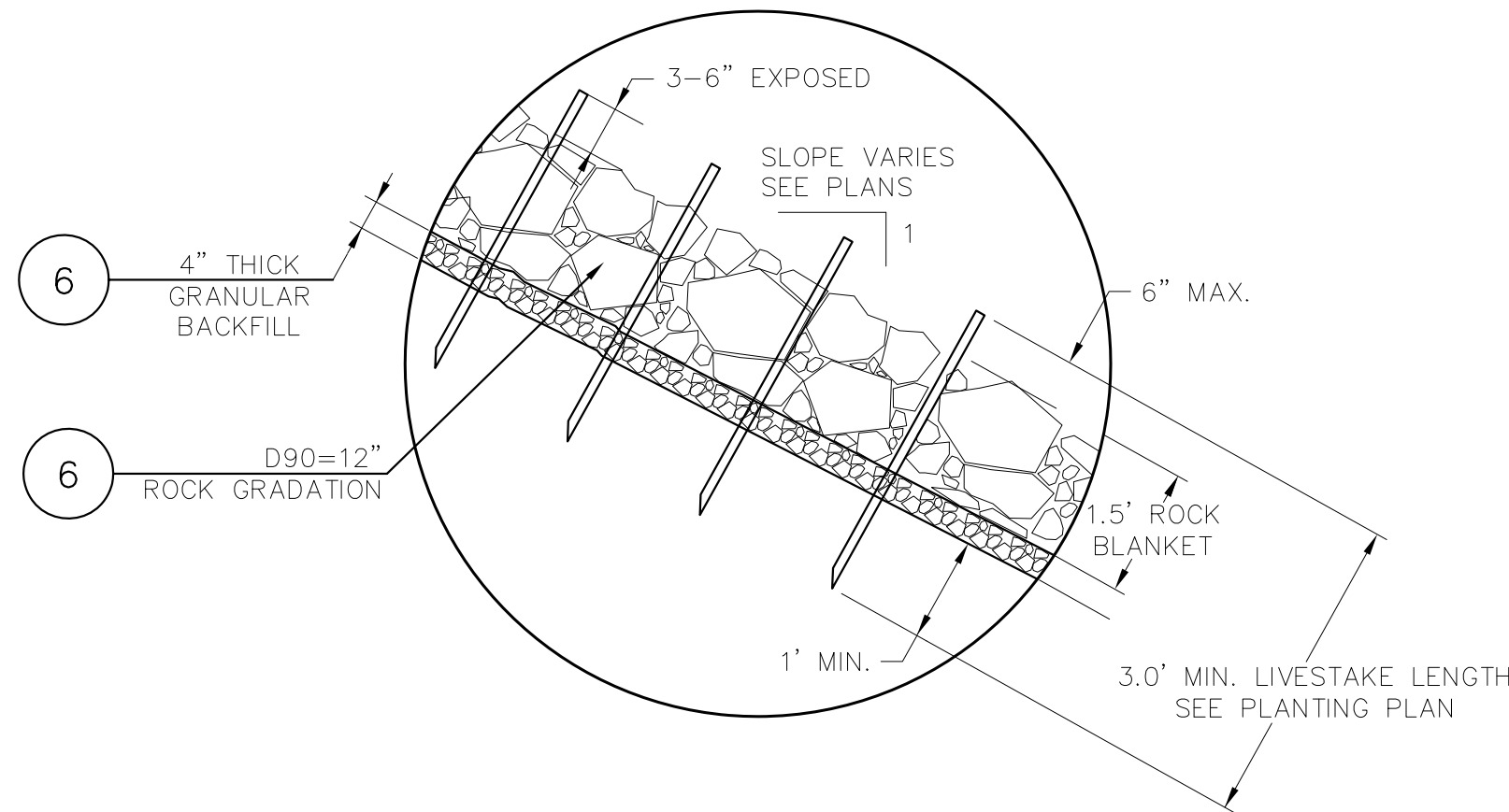
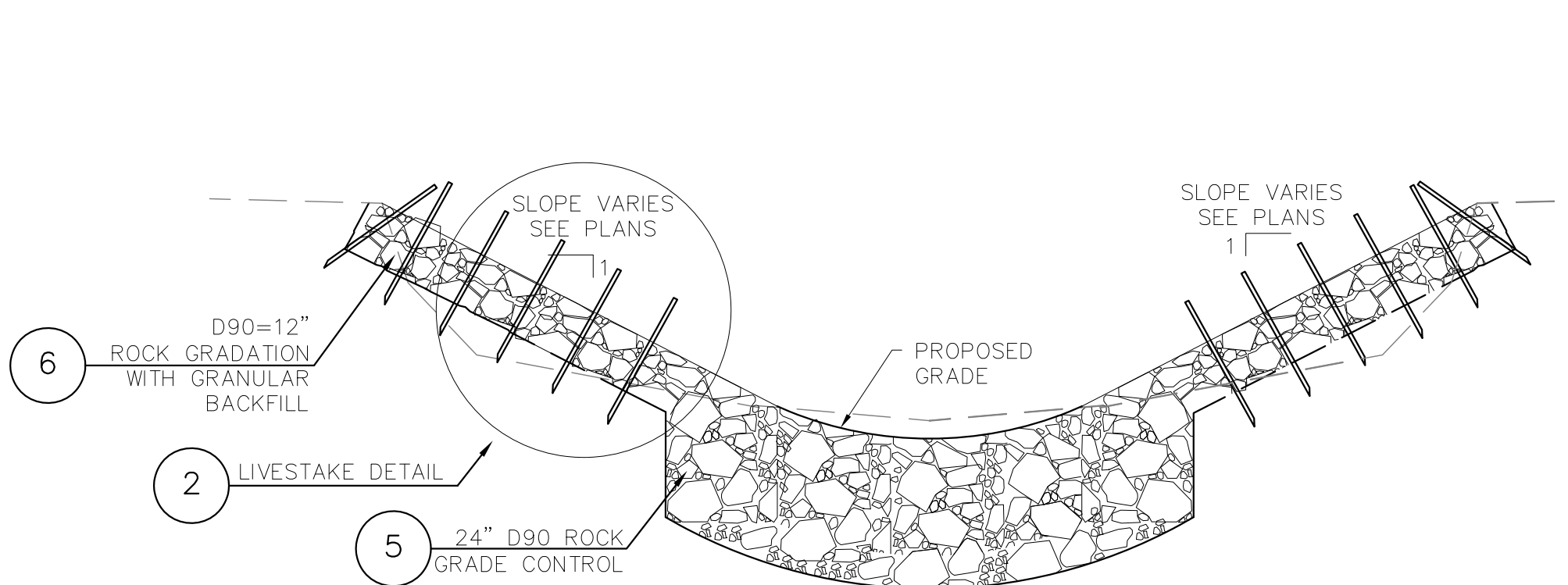
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Sheet Title:		
OVERALL PLAN		
Sheet Number:		
3 OF 9		



005_Middlebrook_Details

10/16/2012

Path: P:\1207 - Creve Coeur - Middlebrook_Chilton-Autocad-Plans.dwg
Plotted on: 10/16/12 @ 11:26:08AM by Amy



ROCK GRADATION TABLE D ₉₀ = 12"	
RIPRAP ROCK SIZE (inches)	PERCENT PASSING
0.001	5
0.04	10
1.64	15
3.5	30
7	50
10	70
11.5	85
12	90

ROCK GRADATION TABLE D ₉₀ = 24"	
RIPRAP ROCK SIZE (inches)	PERCENT PASSING
0.001	5
0.04	10
3.29	15
7	30
12	50
19	70
23	85
24	90

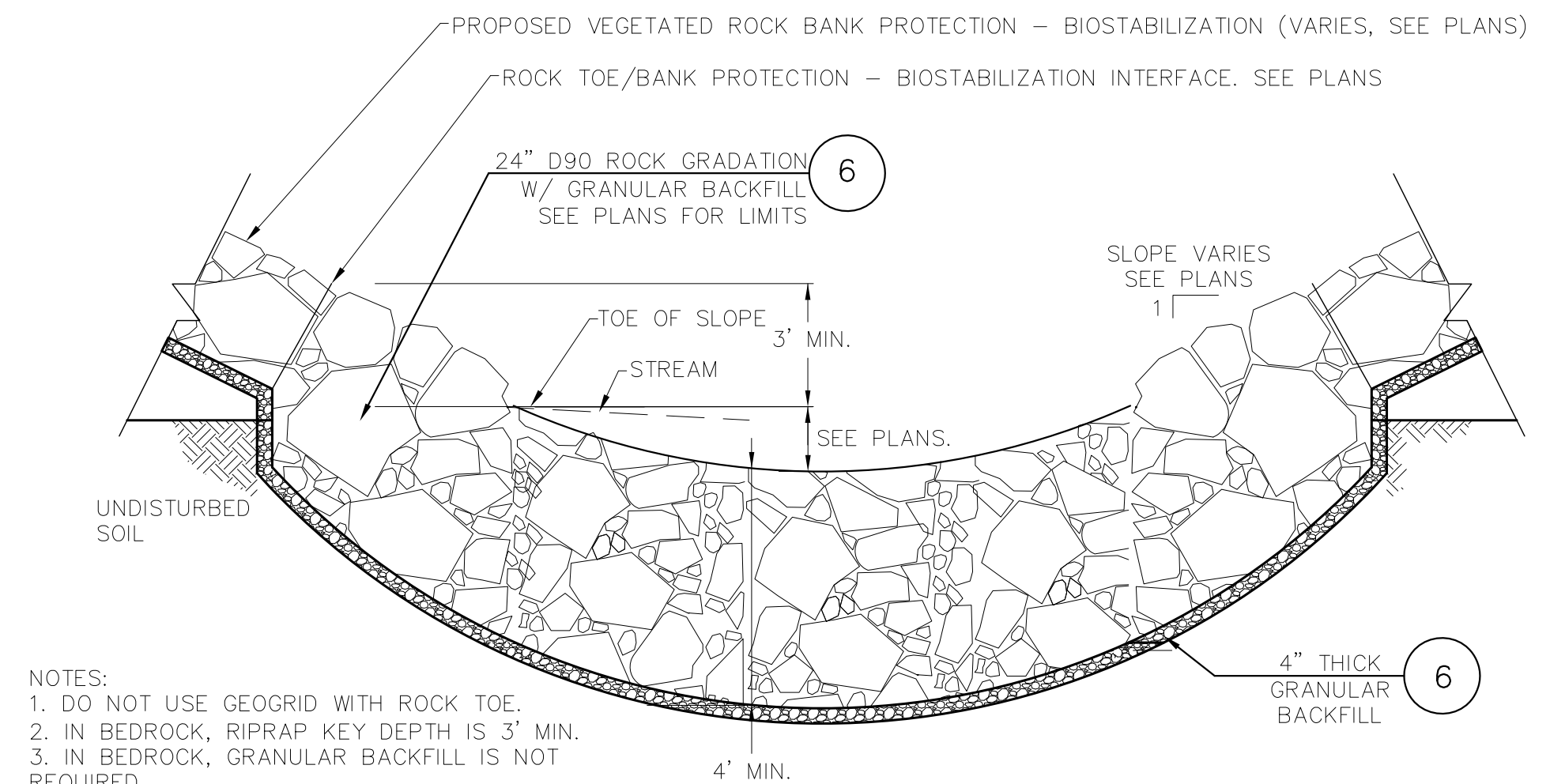
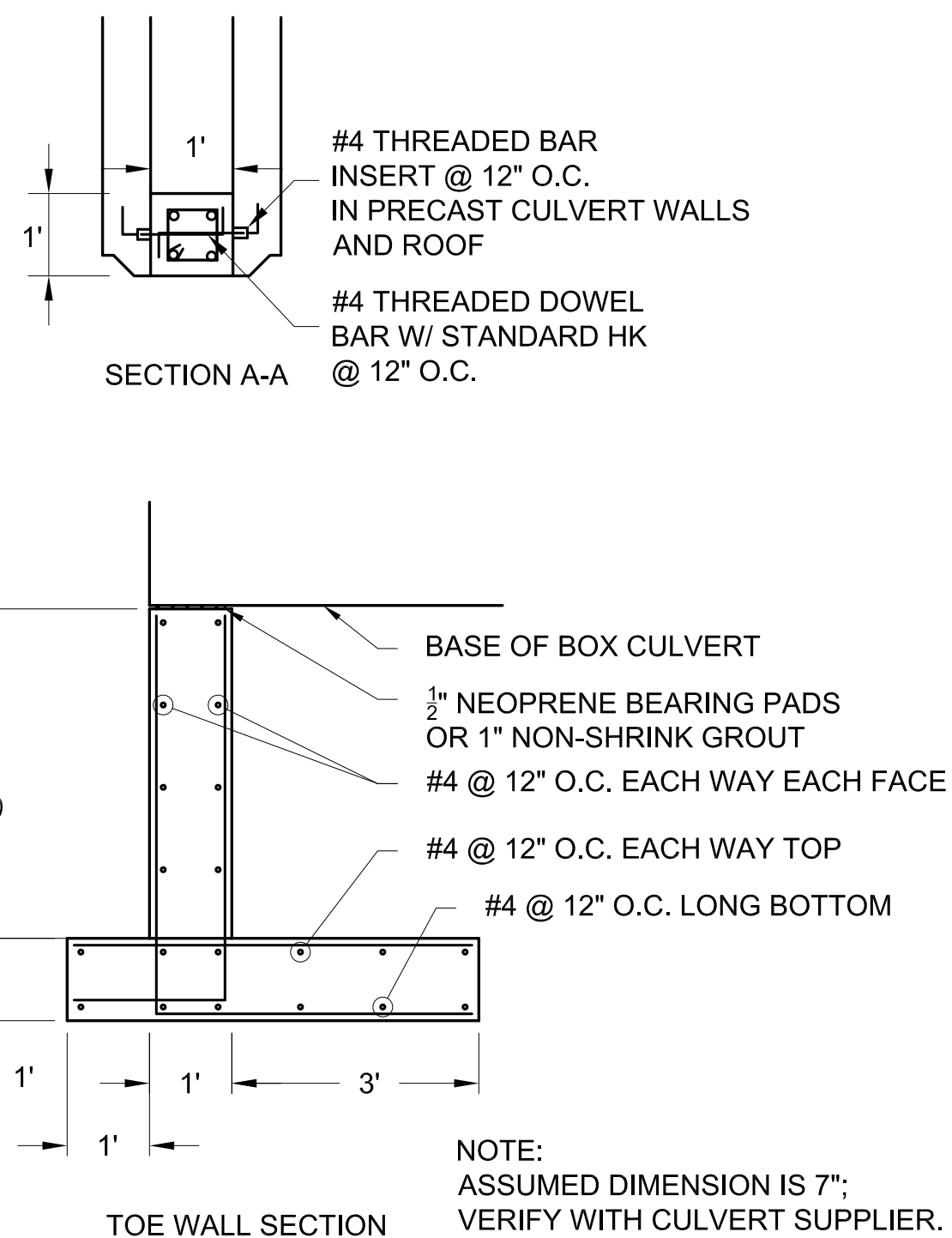
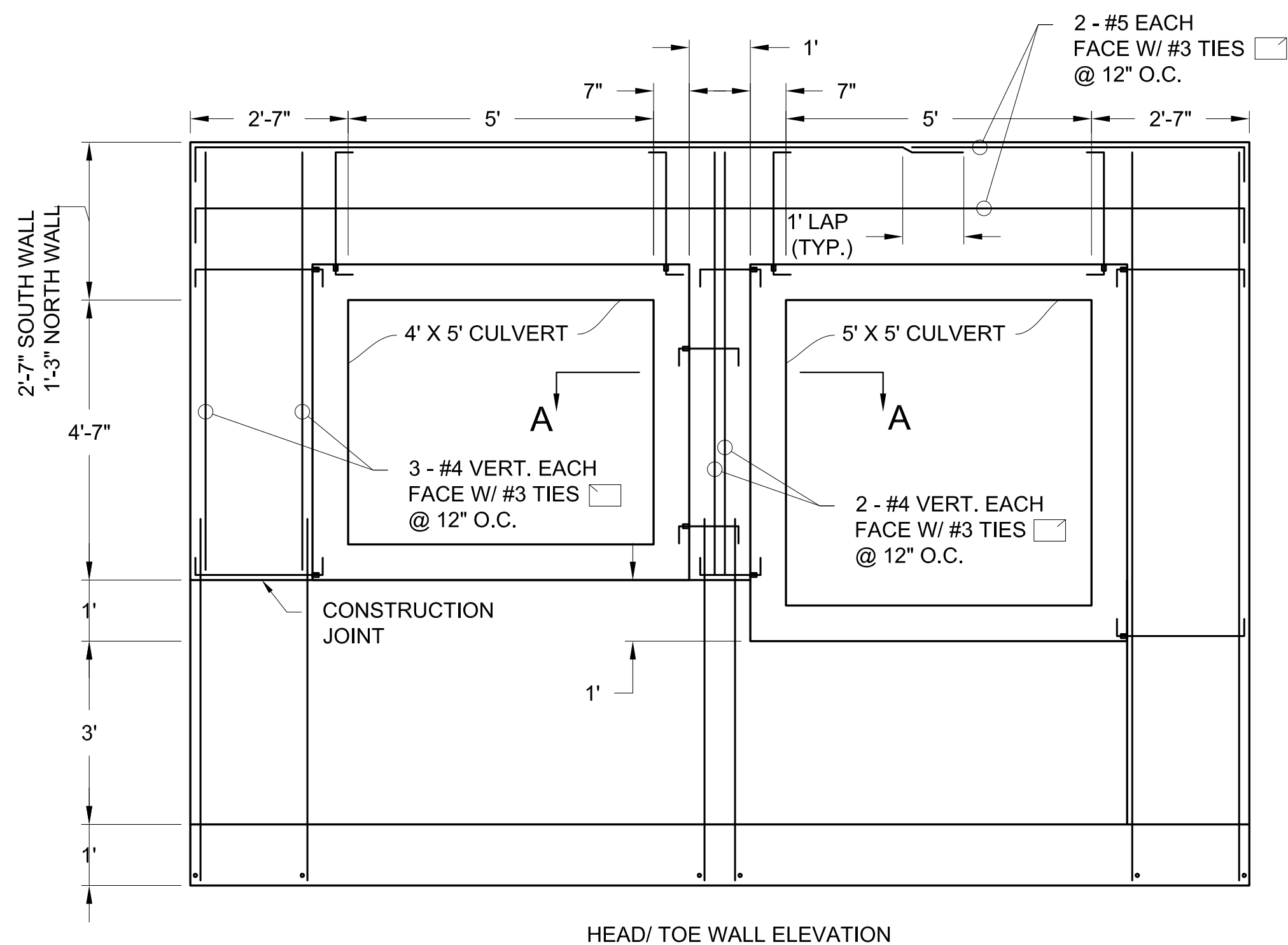
NOTES:

1. Rock shall be hard, durable, angular in shape and resist weathering. Rock shall not contain shale. Neither breadth nor thickness of a single stone shall be less than 1/3 its length. Rock shall be well graded. The rock shall contain fines in sufficient quantities to fill voids while allowing point-to-point contact between rocks. Rock suspended in a matrix of fines shall not be allowed. THERE SHALL BE NO VISIBLE VOIDS IN ROCK STRUCTURES.
2. FOR 24" D90 ROCK
70% of rock shall be 7" or larger.
50% of rock shall be 12" or larger.
30% of rock shall be 19" or larger.
10% of rock shall be 24" or larger.
3. FOR 12" D90 ROCK
70% of rock shall be 3.5" or larger.
50% of rock shall be 7" or larger.
30% of rock shall be 10" or larger.
10% of rock shall be 12" or larger.
4. GRANULAR BACKFILL
MSD Type 1 bedding shall be used for the designated granular backfill.

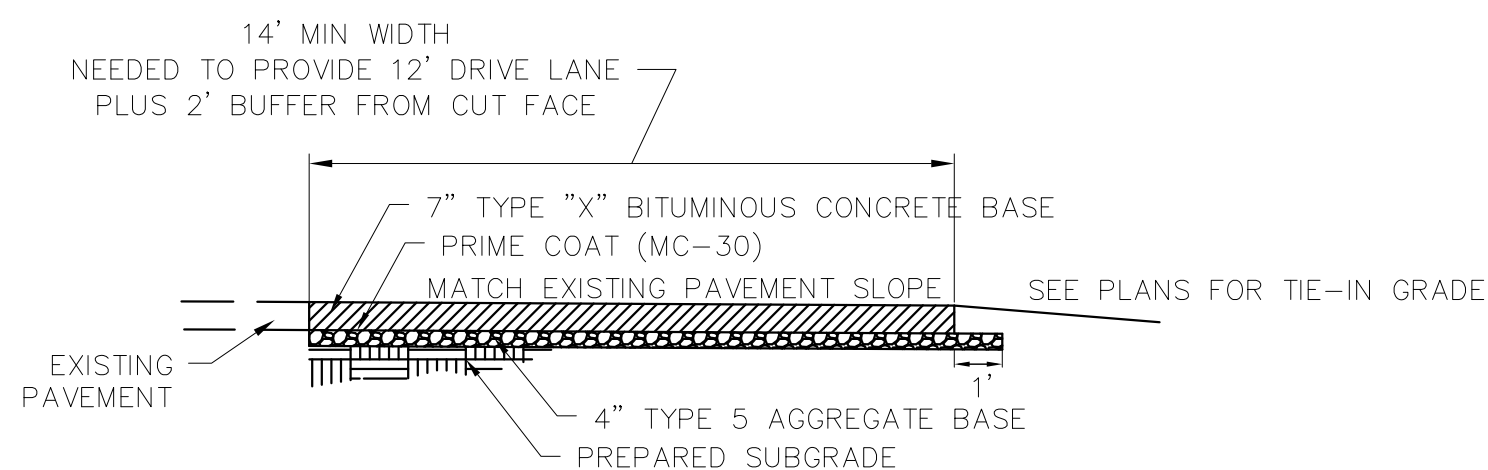
1 ROCK LINED SLOPE WITH LIVESTAKES
D90 = 12" ROCK GRADATION NTS

2 LIVESTAKE DETAIL NTS

3 ROCK GRADATIONS NTS

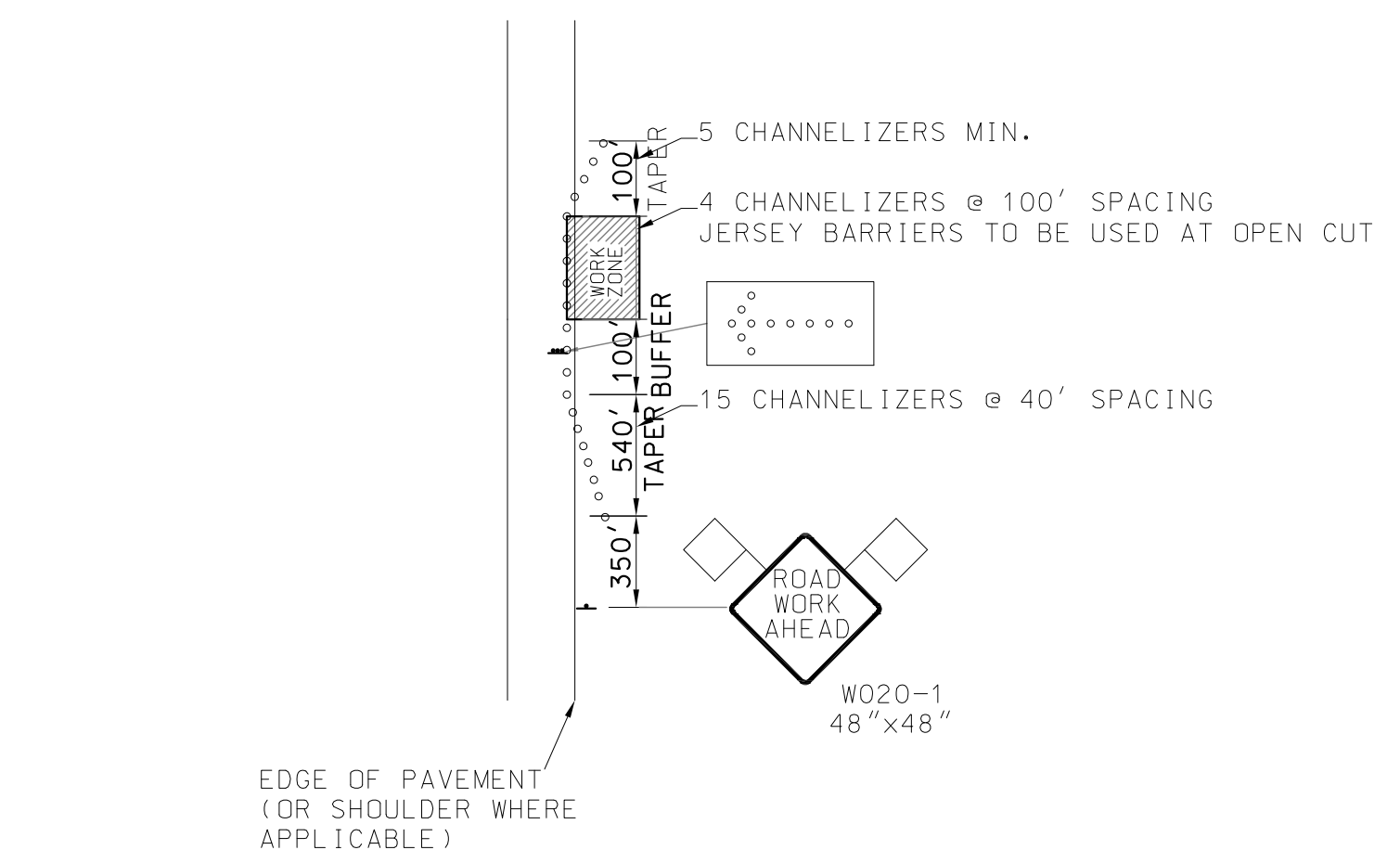


4 REINFORCED CONCRETE HEADWALL
FOR RCB NTS



6 TEMPORARY TYPICAL PAVEMENT SECTION NTS

7 TYPICAL PAVEMENT SECTION NTS



8 TRAFFIC CONTROL NTS



ILINC Engineering Incorporated
MO Certificate of Authority
2000152967
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

Middlebrook Culvert Rehabilitation
Creve Coeur, St Louis County, Missouri

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Mark Edward Meyer
2000150043

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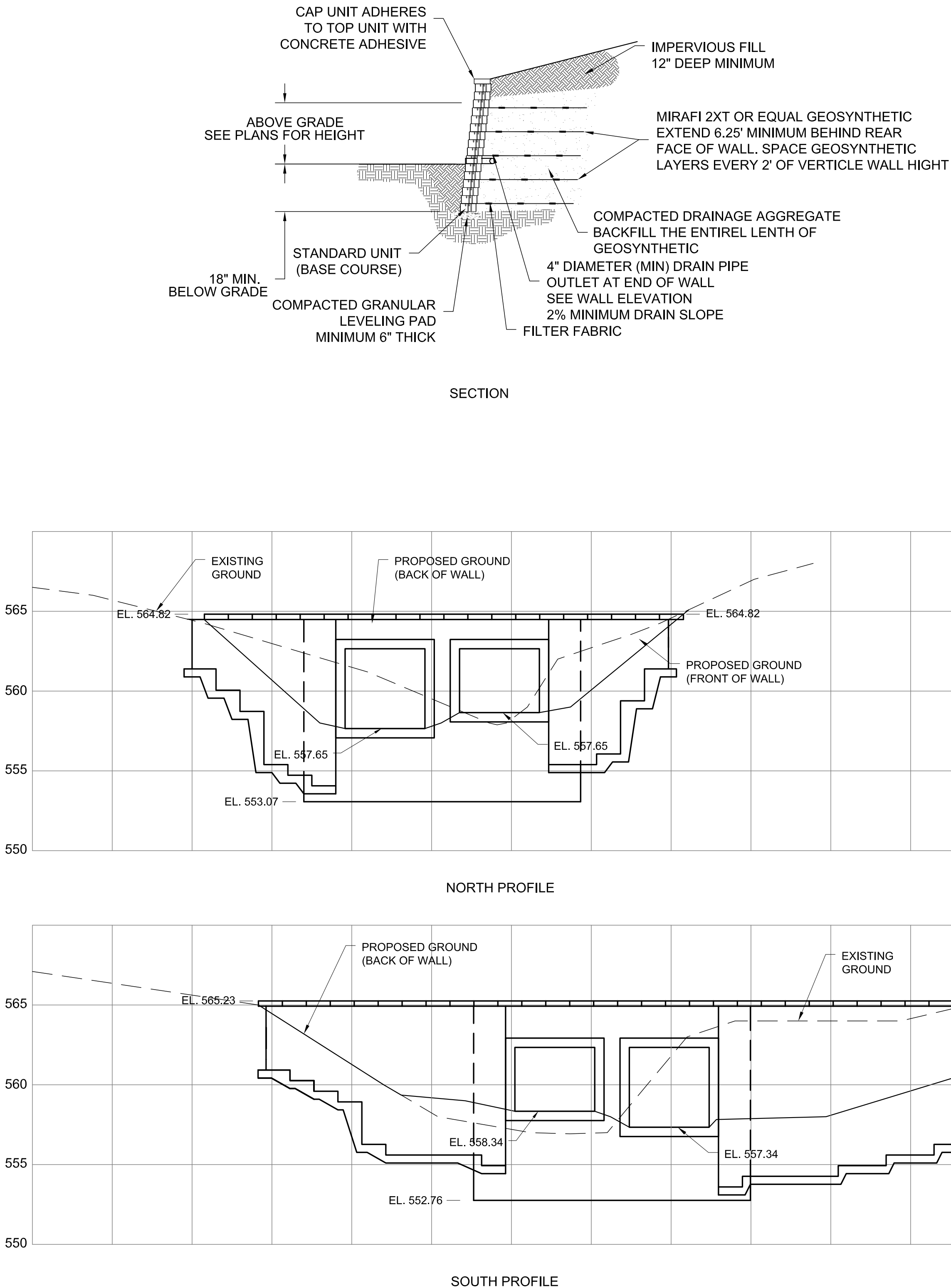
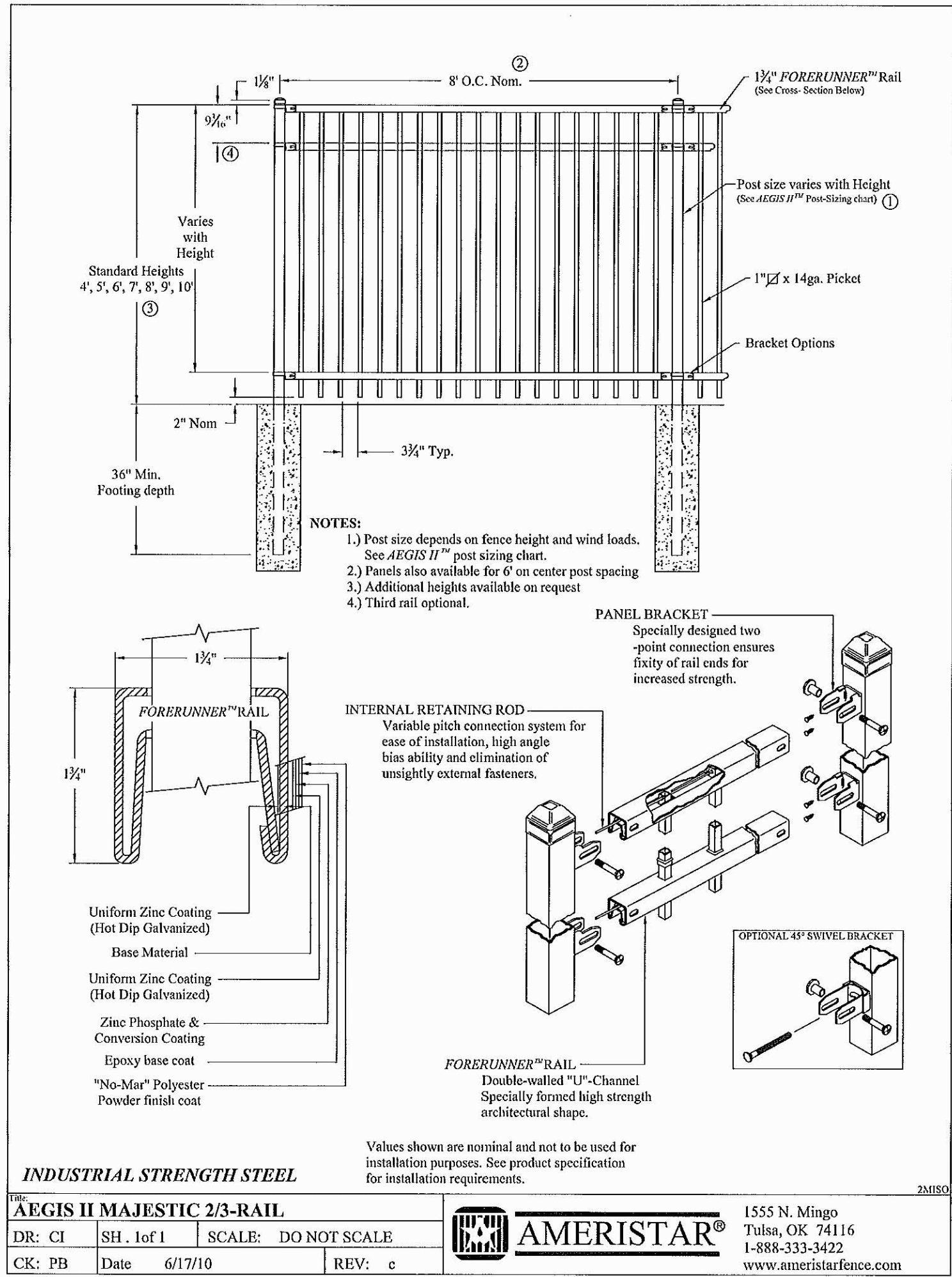
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Project No. 1207
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Drawn: AMO
Checked: TPD
Approved: MEM
Sheet Title:

DETAILS

Sheet Number:

5 OF 9



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MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

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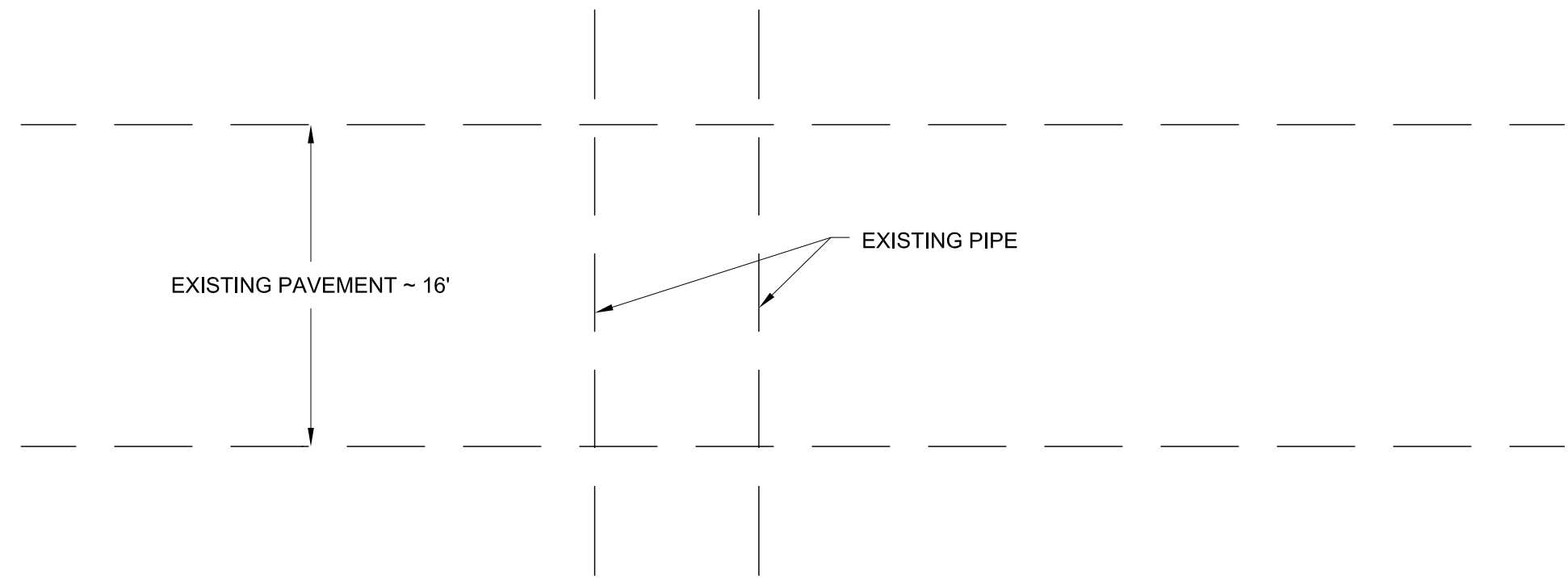
DETAILS

Sheet Number:

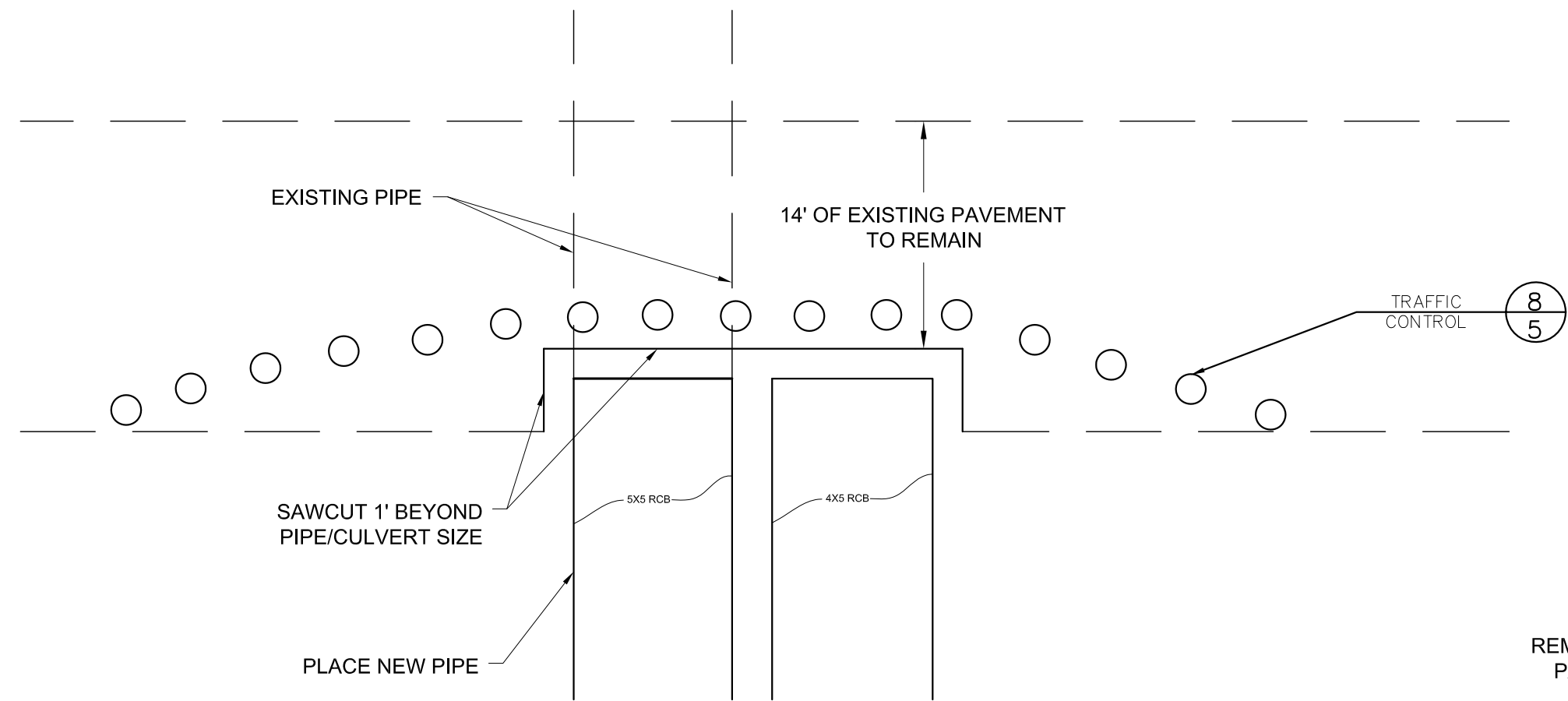
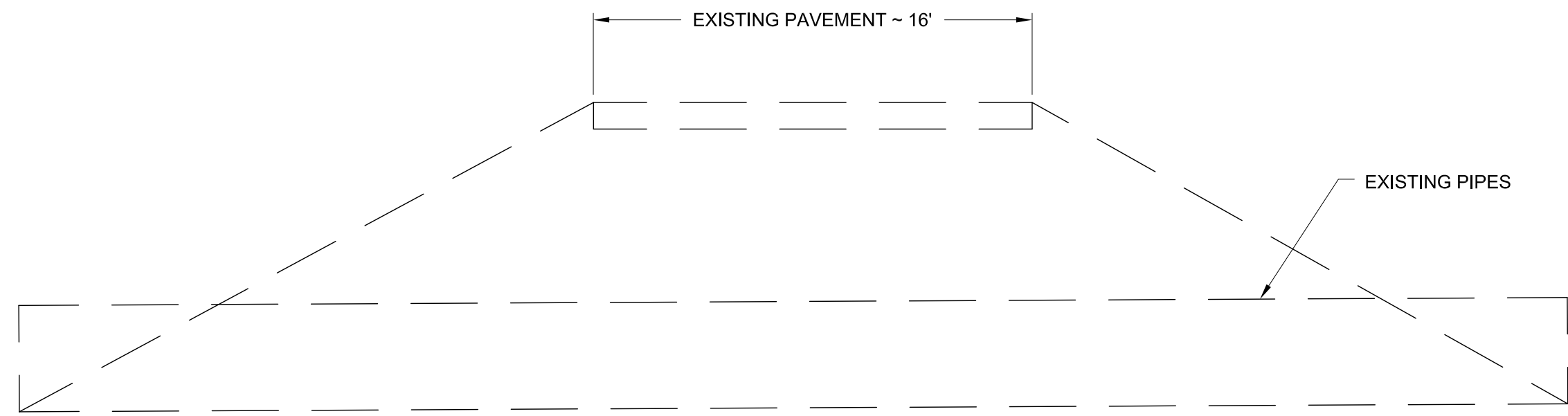
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10/16/2012

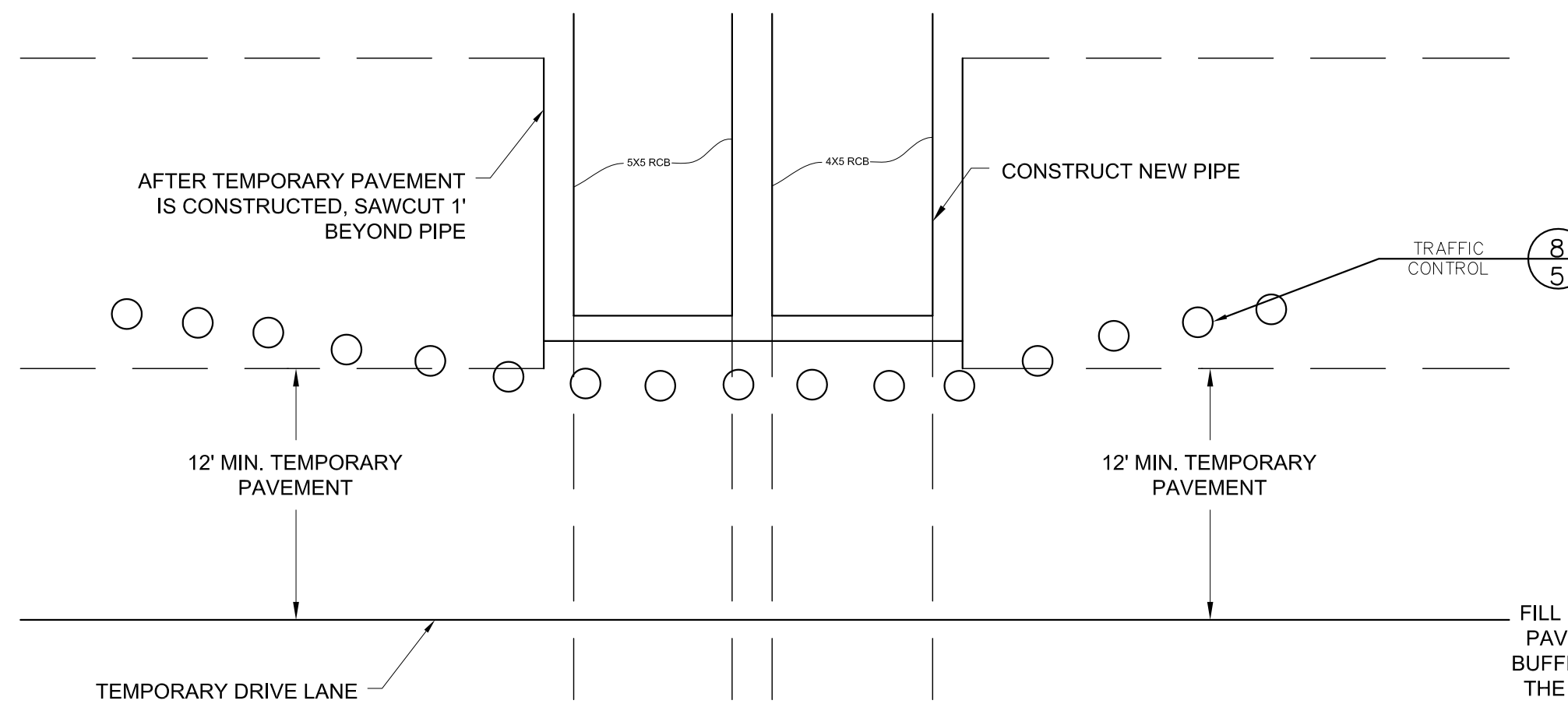
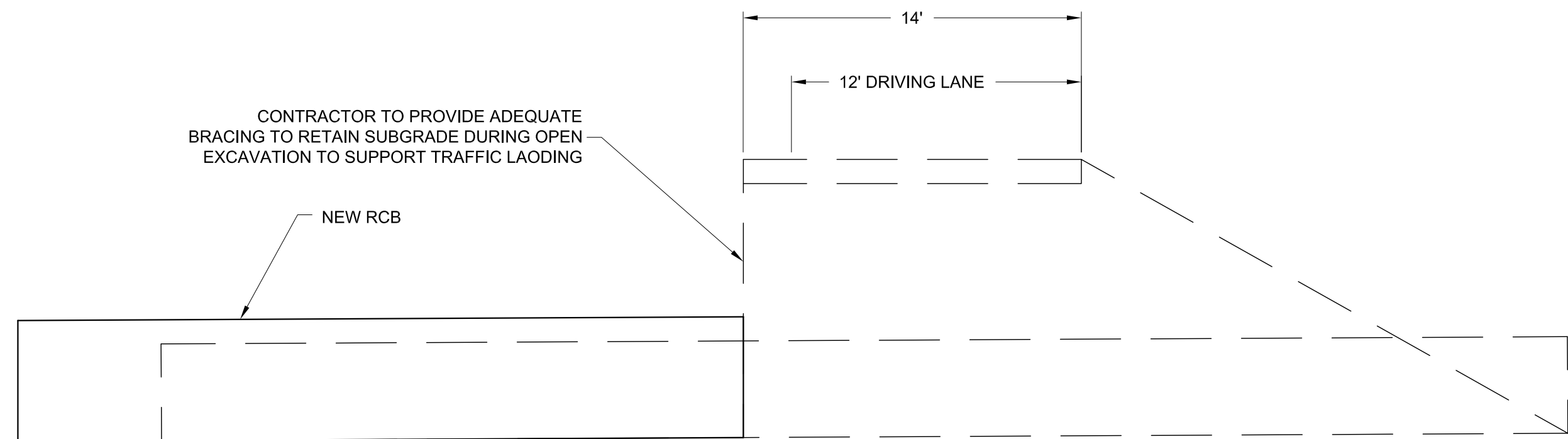
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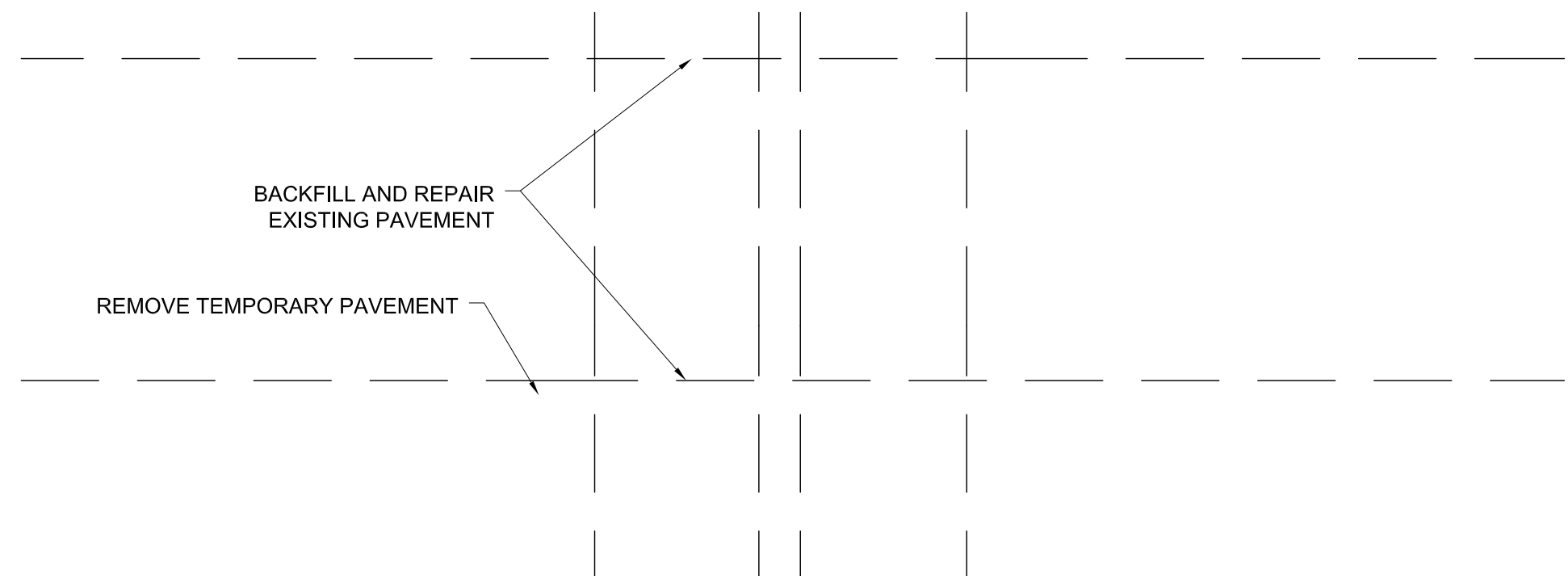
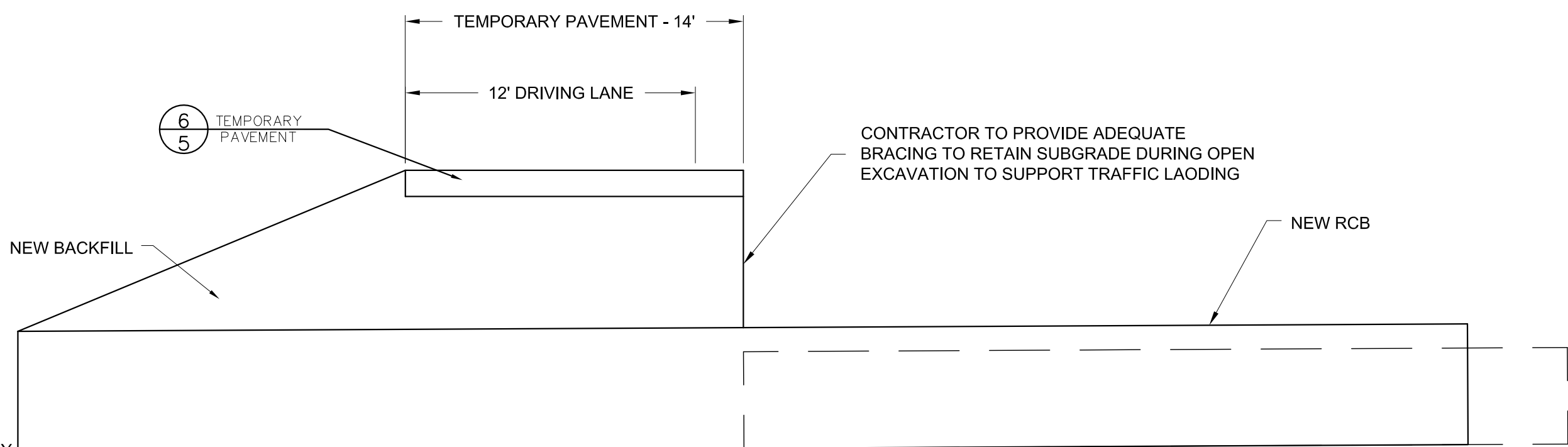
EXISTING CONDITION



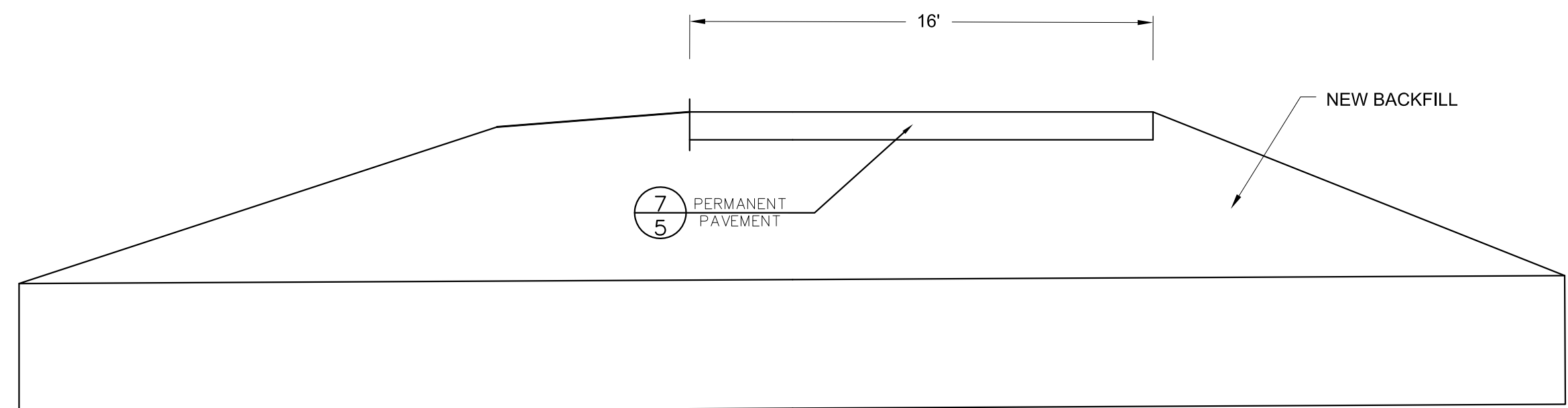
PHASE 1:
REMOVE AND EXCAVATE ALL BUT 14' OF EXISTING PAVEMENT. REMOVE AND REPLACE EXISTING CULVERT WITH NEW CULVERTS.



PHASE 2:
FILL OVER NEW CULVERTS AND PLACE TEMPORARY PAVEMENT TO PROVIDE 12' DRIVE LANE PLUS 2' OF BUFFER PAVEMENT WIDTH FROM CUT FACE. REMOVE THE EXISTING PAVEMENT, BACKFILL, AND EXISTING CULVERT. REPLACE WITH NEW CULVERTS.



PHASE 3:
BACKFILL OVER NEW CULVERTS AND REPLACE PAVEMENT. REMOVE TEMPORARY PAVEMENT AND GRADE TO FINISH GRADES.



CULVERT CONSTRUCTION PHASING

NTS



ILINC Engineering Incorporated
MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
Fax (314) 432-5812

Middlebrook Culvert Rehabilitation

Creve Coeur, St Louis County, Missouri

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Mark Edward Meyer
2000150043

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Sheet Number:

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Biostabilization Middlebrook Northwest

Botanical Name	Common Name	Form	Spacing on Center (ft)	Quantity	Notes
<i>Cephalanthus occidentalis</i>	Buttonbush	4ft livestake	2	1	Plant livestakes randomly along both banks of Grade Control structure. DO NOT PLANT IN CHANNEL BED
<i>Cornus amomum</i>	Silky dogwood	4ft livestake	2	1	
<i>Cornus sericea</i>	Redosier dogwood	4ft livestake	2	1	
<i>Salix exigua ssp. interior</i>	Sandbar willow	4ft livestake	2	1	
<i>Salix caroliniana</i>	Carolina willow	4ft livestake	2	1	
			TOTAL	5	

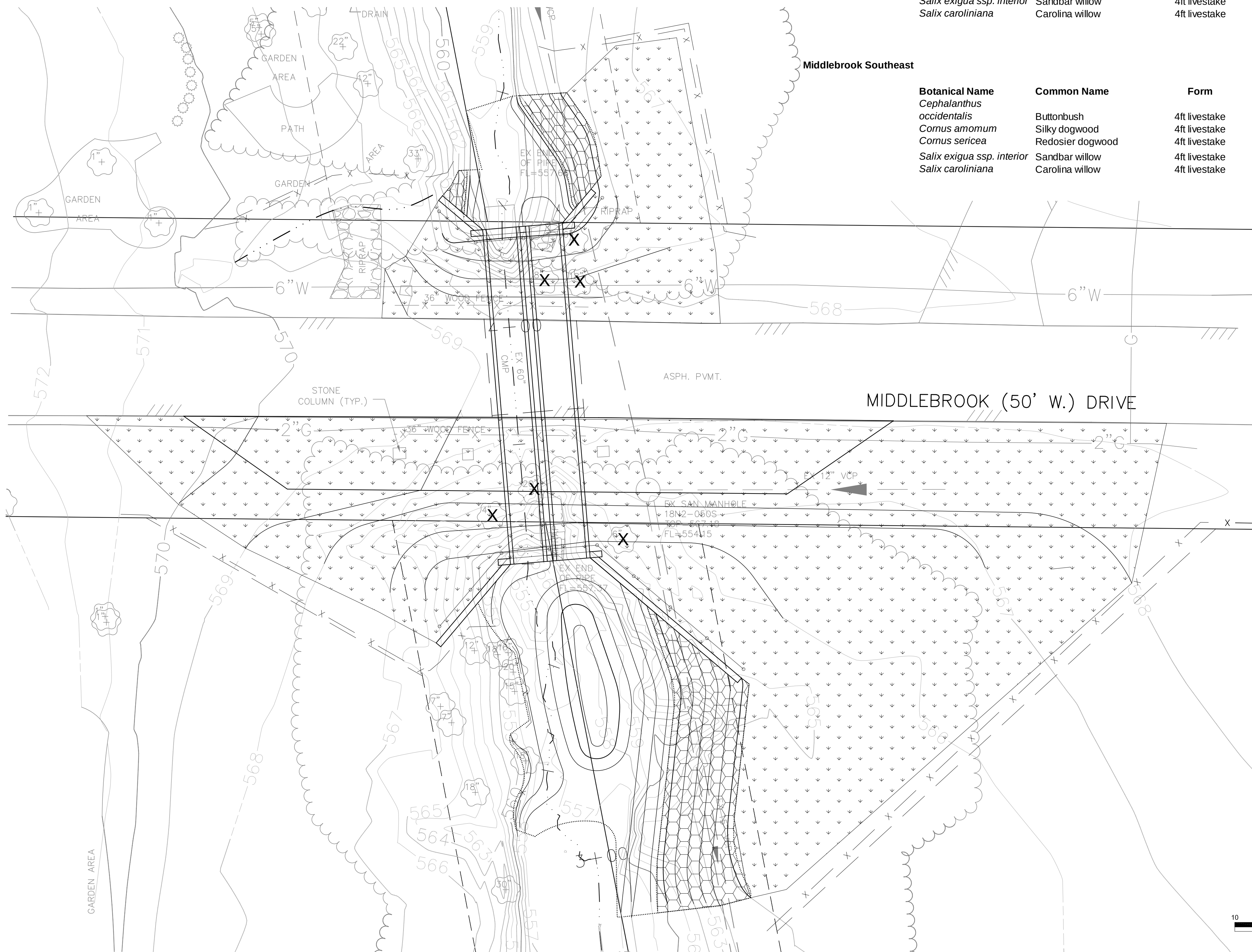
Middlebrook Northeast

Botanical Name	Common Name	Form	Spacing on Center (ft)	Quantity	Notes
<i>Cephalanthus occidentalis</i>	Buttonbush	4ft livestake	2	8	Plant livestakes randomly along both banks of Grade Control structure. DO NOT PLANT IN CHANNEL BED
<i>Cornus amomum</i>	Silky dogwood	4ft livestake	2	8	
<i>Cornus sericea</i>	Redosier dogwood	4ft livestake	2	8	
<i>Salix exigua ssp. interior</i>	Sandbar willow	4ft livestake	2	8	
<i>Salix caroliniana</i>	Carolina willow	4ft livestake	2	8	
			TOTAL	40	

Middlebrook Southeast

Botanical Name	Common Name	Form	Spacing on Center (ft)	Quantity	Notes
<i>Cephalanthus occidentalis</i>	Buttonbush	4ft livestake	2	34	Plant livestakes randomly along both banks of Grade Control structure. DO NOT PLANT IN CHANNEL BED
<i>Cornus amomum</i>	Silky dogwood	4ft livestake	2	34	
<i>Cornus sericea</i>	Redosier dogwood	4ft livestake	2	34	
<i>Salix exigua ssp. interior</i>	Sandbar willow	4ft livestake	2	34	
<i>Salix caroliniana</i>	Carolina willow	4ft livestake	2	34	
			TOTAL	170	

Combined Plant Palette			
Botanical Name	Common Name	Form	Quantity
<i>Cephalanthus occidentalis</i>	Buttonbush	4ft livestake	43
<i>Cornus amomum</i>	Silky dogwood	4ft livestake	43
<i>Cornus sericea</i>	Redosier dogwood	4ft livestake	43
<i>Salix exigua</i> ssp. <i>interior</i>	Sandbar willow	4ft livestake	43
<i>Salix caroliniana</i>	Carolina willow	4ft livestake	43
Grand Total			215



INTUITION 
LOGIC

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MO Certificate of Authority
20000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
Phone (636) 777-3000
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Creve Coeur, St Louis County, Missouri

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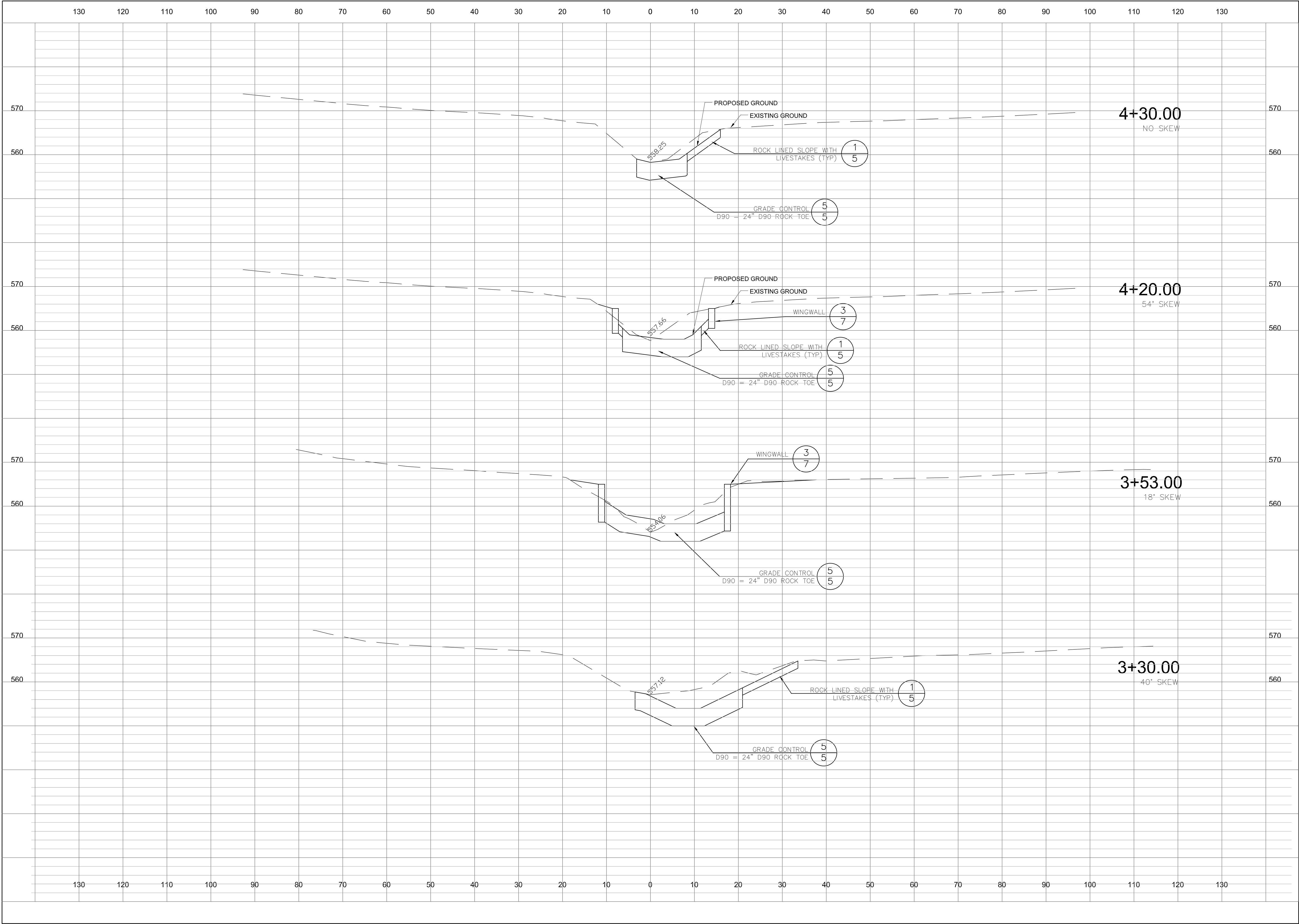
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Project No. 1207
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PLANTING PLAN

Sheet Number:

8 OF 9



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MO Certificate of Authority
2000152987
16253 Swingley Ridge Rd.
Suite 100
Chesterfield, MO 63017
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CROSS SECTIONS

Sheet Number:

9 OF 9



city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141
(314) 432-6000 • Fax (314) 872-2539 • Relay MO 1-800-735-2966
www.creve-coeur.org

APPLICATION TO PLANNING AND ZONING COMMISSION #12-031 FOR APPROVAL FOR THE PRELIMINARY PLAT FOR 222 N. MASON ROAD, LOT A

FOR THE MEETING OF: November 5, 2012

LOCATION: 222 N. Mason Road

REQUEST: Chris Vatterott, on behalf of The Enclave at Bellerive, LLC, has submitted an application for preliminary plat for 222 N. Mason Road. The proposal involves the creation of a new residential lot just north of Enclave Bellerive subdivision at the northeast corner of Mason and Ladue Roads.

ADDITIONAL INFORMATION: The preliminary plat for the Enclave Bellerive subdivision was approved in 2005. The original preliminary plat for the subdivision showed a total of 55 lots with a B zoning and a RDD plat approval. The proposal would create a new free standing lot on land that was designated for the reconfiguration of Mason Road. However, the alignment chosen by St. Louis County no longer requires this area.

Key Issues:

- Does the lot substantially meet all land development standards of this Chapter and those of any other applicable City regulations?

Subdivision Code References

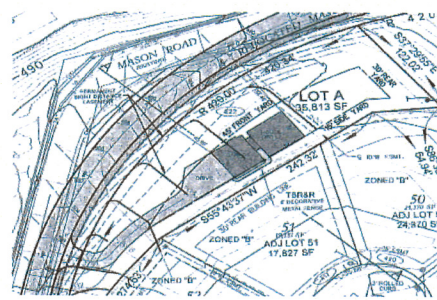
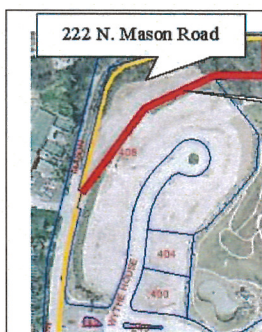
- Chapter 410: Subdivision and Development of Land

Zoning Code References

- Section 405.260: "B" Single Family Residential

APPLICANTS: Chris Vatterott
The Enclave Bellerive, LLC
332 Wythe House Court
Creve Coeur, MO 63141

OWNER: The Enclave Bellerive, LLC
332 Wythe House Court
Creve Coeur, MO 63141



REPORT PREPARED BY:

Whitney Kelly
Whitney Kelly, AICP, City Planner

11/2/2012
Date

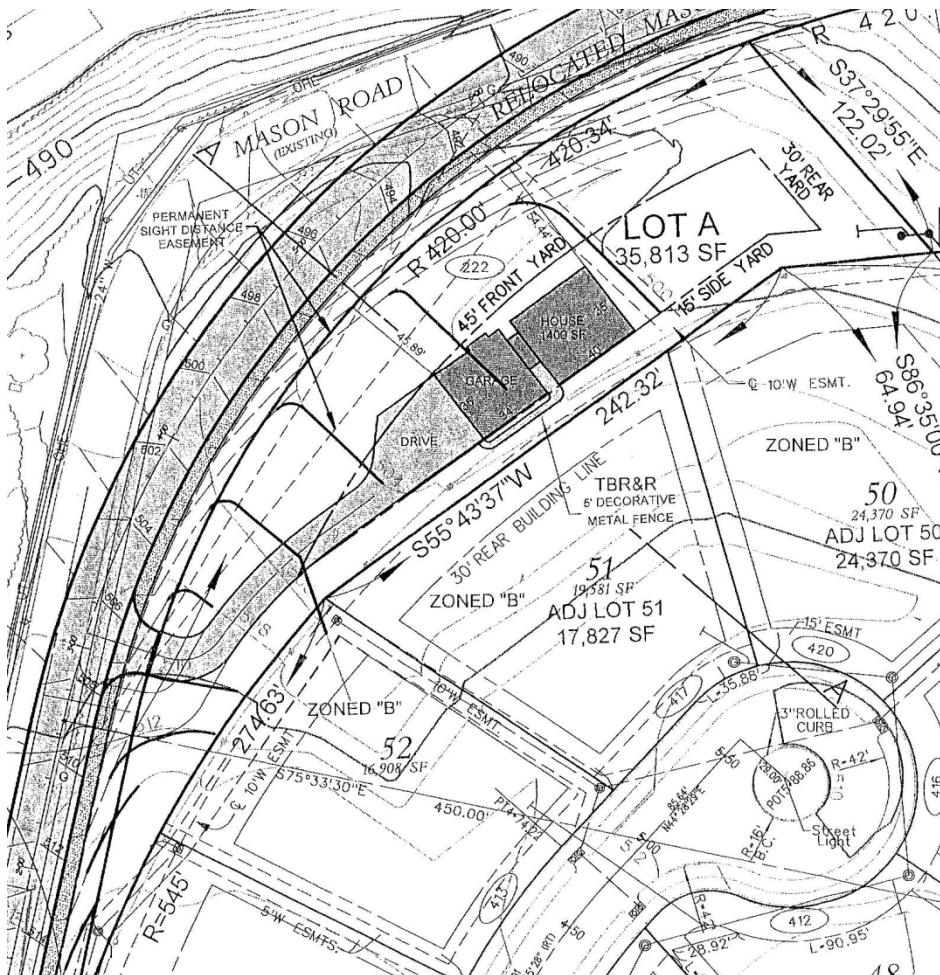
ATTACHMENTS: Applicant's Preliminary Plat submitted on September 28, 2012
Ordinance Number 3037

SUBDIVISION AND ZONING HISTORY

The Planning and Zoning Commission recommended approval of the preliminary subdivision plat on January 3, 2005. The City Council subsequently approved the development of Enclave at Bellerive on January 24, 2005, when the property was rezoned from "A" to "B" Single-Family Residential with an "RDD" Residential Design Development preliminary plat. A site development plan was also approved at that time for fifty-five (55) houses. Ordinance No. 3037 that allowed for the rezoning of Enclave Bellerive includes the following condition:

1. The applicant or public jurisdiction shall acquire right-of-way from the property, addressed as 338 N. Mason Road, for the placement of Mason Road as shown on the plan. To the extent the applicant acquires excess property beyond that needed for right-of-way, such excess property shall be incorporated into the development as additional open space and common ground. To the extent any such excess property is acquired by a public jurisdiction, the City would encourage that public entity to leave the space as undeveloped open space.

The applicant is seeking approval for a preliminary plat, to create a new lot (Lot A, addressed as 222 N. Mason Road) on the land that was designated for the reconfiguration of Mason Road, for the development of a single family residence for sale (see below). The alignment chosen by St. Louis County no longer requires this area. 338 N. Mason Road is the property immediately adjacent to the proposed Lot A, and was to be acquired for the use as a maintenance shed for the common ground which has not occurred and that lot is not part of this application.



LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

Direction	Use	Zoning District	Separated by
North	Bellerive Country Club	Town and Country Zoning	Mason Road
South	Single-family residences Enclave Bellerive Subdivision	“B” Single-family Residential with Residential Design Development Plat Approval	N/A
East	Single-family residences	“A” Single-family Residential	N/A
West	Bellerive Country Club	Town and Country Zoning	Mason Road

ANALYSIS

Chapter 410: Subdivision and Development of Land, provide the regulations governing the development and subdivision of land in the City. The stated intent and purpose of the chapter includes:

SECTION 410.020: INTENT AND PURPOSE

The subdivision of land is normally the first (1st) step in the process of land development. The development of land in the community for residential and commercial uses and for streets, alleys, schools, parks and other purposes is of public interest. These regulations are designed to be utilized in conjunction with the Creve Coeur zoning ordinance to ensure the development of land in a manner that will contribute to the well-being of the citizens of Creve Coeur. The specific purposes of these regulations include:

5. To establish a beneficial relationship between the uses of land and buildings and the municipal street system; to require the proper location and design of streets and building lines; to minimize traffic congestion; and to make adequate provision for pedestrian traffic circulation.
6. To establish reasonable standards of design and procedures for subdivision and resubdivision in order to further the orderly layout and use of land; and to ensure proper legal descriptions and documentation of subdivided land for the protection of both buyers and sellers of land.

Section 410.220: Lots provide further direction regarding the Lot layout:

SECTION 410.220: LOTS

- A. Every lot shall abut an approved public or private street. The size, shape and orientation of lots shall be appropriate for the location of the subdivision and for the type of development and use contemplated.
- B. The minimum area of lots shall be in accordance with the requirements and use provisions of the zoning district in which the property is located and with the Creve Coeur zoning ordinance. The calculation of the lot area shall be exclusive of the area of the street right-of-way or road or alley easement abutting the lot. The lots shall also have a width and depth adequate to provide the necessary front, side and rear yard requirements of the Creve Coeur zoning ordinance.
- C. Side lines of lots shall be generally at right angles to straight street lines or radial to curved street lines unless otherwise approved to give a better street and lot plan.
- D. Where lots that front upon the outside curve of a curved street have a radius of two hundred (200) feet or less as measured at the centerline of the street, the minimum continuous width of the lot may be measured at the minimum front

building or setback line as established in the Creve Coeur zoning ordinance. However, the width at such street right-of-way line shall not be less than fifty percent (50%) of the required lot width with such width being measured on the area of the street right-of-way line.

- E. Where lots front upon the inside curve of a curved street, the minimum continuous width of the lot shall be measured at the minimum front building or setback line.

SECTION 405.260: "B" SINGLE-FAMILY RESIDENTIAL DISTRICT

E. Dimensional Regulations. The following area and yard regulations apply in the "B" Single-Family Residential District.

- 1. Lot size requirements.
 - a. Minimum lot area. Twenty thousand (20,000) square feet.
 - b. Minimum lot width. One hundred (100) feet.
 - c. Minimum lot depth. One hundred (100) feet.
- 3. Yard and setback requirements.
 - a. Minimum front yard for permitted uses. Forty-five (45) feet.
 - c. Minimum side yard for permitted uses. Fifteen (15) feet or fifteen percent (15%) of the lot width, whichever is less.
 - e. Minimum rear yard for permitted uses. Thirty (30) feet.

The proposed lot is of irregular shape that directly abuts a public street. The proposed lot area is 35,813 sq. ft., with a lot depth of 581.89 feet as measured at the property line. As the lot is a triangular lot, the lot width is measured along the curve along Mason Road and is 420.34 feet. While the minimum technical requirements of the code have been met, Staff note that the lot does not satisfy Section 410.220(C) that states that side lines of lots shall be generally at right angles to straight street lines or radial to curved street lines unless otherwise approved to give a better street and lot plan. This lot has been carved out of the land that is left over from the realignment of the Mason Road, and does not create a better street or lot plan.

CONCLUSION AND ACTION

Review of preliminary plat is a ministerial act that should be approved if the proposed substantially meets all land development standards of this Chapter and those of any other applicable City regulations. Application does substantially meet all applicable codes with the exception of the lot shape not meeting the intent of Section 410.220.

Action on this item will be in the form of a motion to recommend approval as presented, approval with additional conditions, to meet all technical requirements. City Council action is not required. The following are examples of motions for this application:

"I move to recommend approval for the preliminary plat for Enclave Bellerive for Lot A as shown in the Site Development Plan and Preliminary Plat, dated September 27, 2012." (other conditions may be added, eliminated, altered, and modified by prior motion).

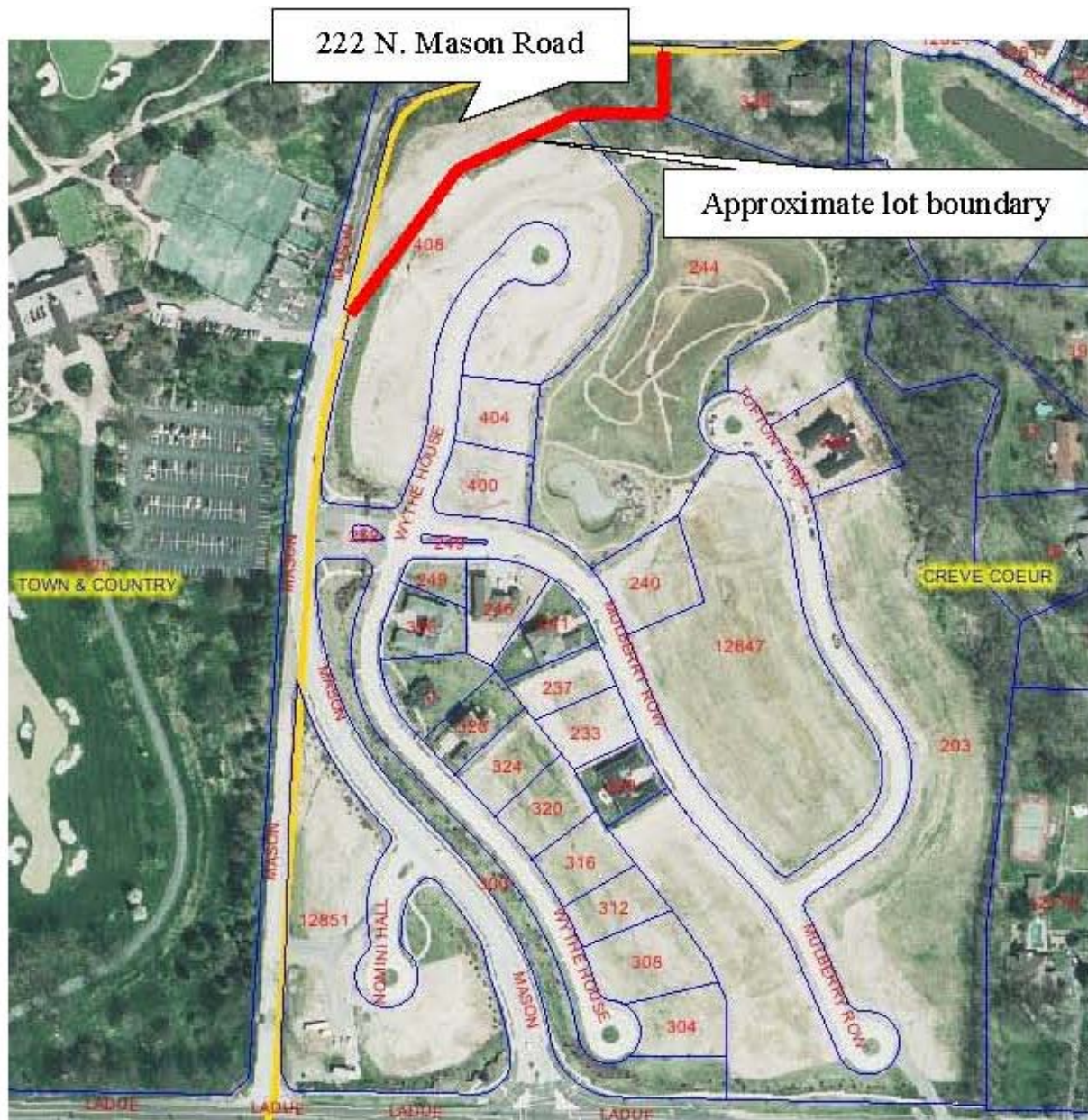
APPENDIX 1: COMPREHENSIVE PLAN

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE (CHAPTER 405 OF THE CREVE COEUR MUNICIPAL CODE)
Included and attached by reference. See body of report for specific excerpts.

**APPENDIX 3: CREVE COEUR SUBDIVISION AND LAND DEVELOPMENT REGULATIONS
(CHAPTER 410 OF THE CREVE COEUR MUNICIPAL CODE)**
Included and attached by reference. See body of report for specific excerpts.

APPENDIX 4: AERIAL MAP



Note that map only shows individual lots that have been recorded with St. Louis County Recorder of Deeds.

Legend

Lot Lines



Not to Scale

APPENDIX 4: SITE PHOTOGRAPHS	Photo Date: 10/22/2012
 A photograph showing a view looking east from across Mason Road. In the foreground, there is a grassy area with a yellow fire hydrant. A paved road with a yellow center line runs horizontally across the middle. In the background, there is a parking lot and a fence, with trees showing autumn foliage under a cloudy sky.	Description: View looking east to the area for the proposed Lot 56 from across Mason Road at the parking lot for the Country Club
 A photograph showing a view looking northeast from across Mason Road. The road curves to the left. A yellow right-turn sign with a speed limit of 20 is visible on the left side of the road. In the background, there is a grassy area, a fence, and trees with autumn foliage under a cloudy sky.	Description: View looking northeast from across Mason Road at the proposed lot.
 A photograph showing a view looking north along Mason Road. The road is paved and curves to the left. A yellow right-turn sign with a speed limit of 20 is visible on the left side of the road. In the background, there is a grassy area, a fence, and trees with autumn foliage under a cloudy sky. A public notice sign is visible in the lower right corner.	Description: View looking north along Mason Road.

OWNER OF RECORD	LOCATOR #	ADDRESS	ACRES
ENCLAVE AT BELLERIVE LLC THE: MAILING ADDRESS: 928 N MCKNIGHT RD ST. LOUIS, MO 63132	18P510114	332 WYTHE HOUSE CT	0.04
	18P510224	12847 LADUE ROAD	3.84
	18P510059	308 WYTHE HOUSE CT	0.53
	18P510060	312 WYTHE HOUSE CT	0.31
	18P510071	316 WYTHE HOUSE CT	0.34
	18P510082	320 WYTHE HOUSE CT	0.36
	18P510093	324 WYTHE HOUSE CT	0.37
	18P510136	245 MULBERRY ROW CT	0.30
	18P510147	241 MULBERRY ROW CT	0.36
	18P510158	237 MULBERRY ROW CT	0.30
	18P510268	233 MULBERRY ROW CT	0.326
	18P530057	408 WYTHE HOUSE CT	5.847
	18P510169	240 MULBERRY ROW CT	0.51
	18P510048	304 WYTHE HOUSE CT	0.39
	18P510312	519 NOMINI HALL ST	0.27
	18P510280	513 NOMINI HALL CT	0.255
	18P510323	501 NOMINI HALL CT	0.497
MAILING ADDRESS: 30 HUNTLEIGH WOODS DR ST. LOUIS, MO 63131	18P520245	221 MULBERRY ROW CT	8.045
	18P510345	504 NOMINI HALL CT	0.837
	18P510301	505 NOMINI HALL CT	0.337
	18P510334	508 NOMINI HALL CT	0.292
	18P510257	404 WYTHE HOUSE CT	0.372
	18P510170	400 WYTHE HOUSE CT	0.43
CHARLES F VATTEROTT CONSTRUCTION COMPANY MAILING ADDRESS: 332 WYTHE HOUSE COURT CREVE COEUR, MO. 63141	18P510291	509 NOMINI HALL CT	0.30
	(10449 ST. CHARLES ROCK ROAD ST ANN, MO. 63074)	ST. LOUIS COUNTY RECORDS	

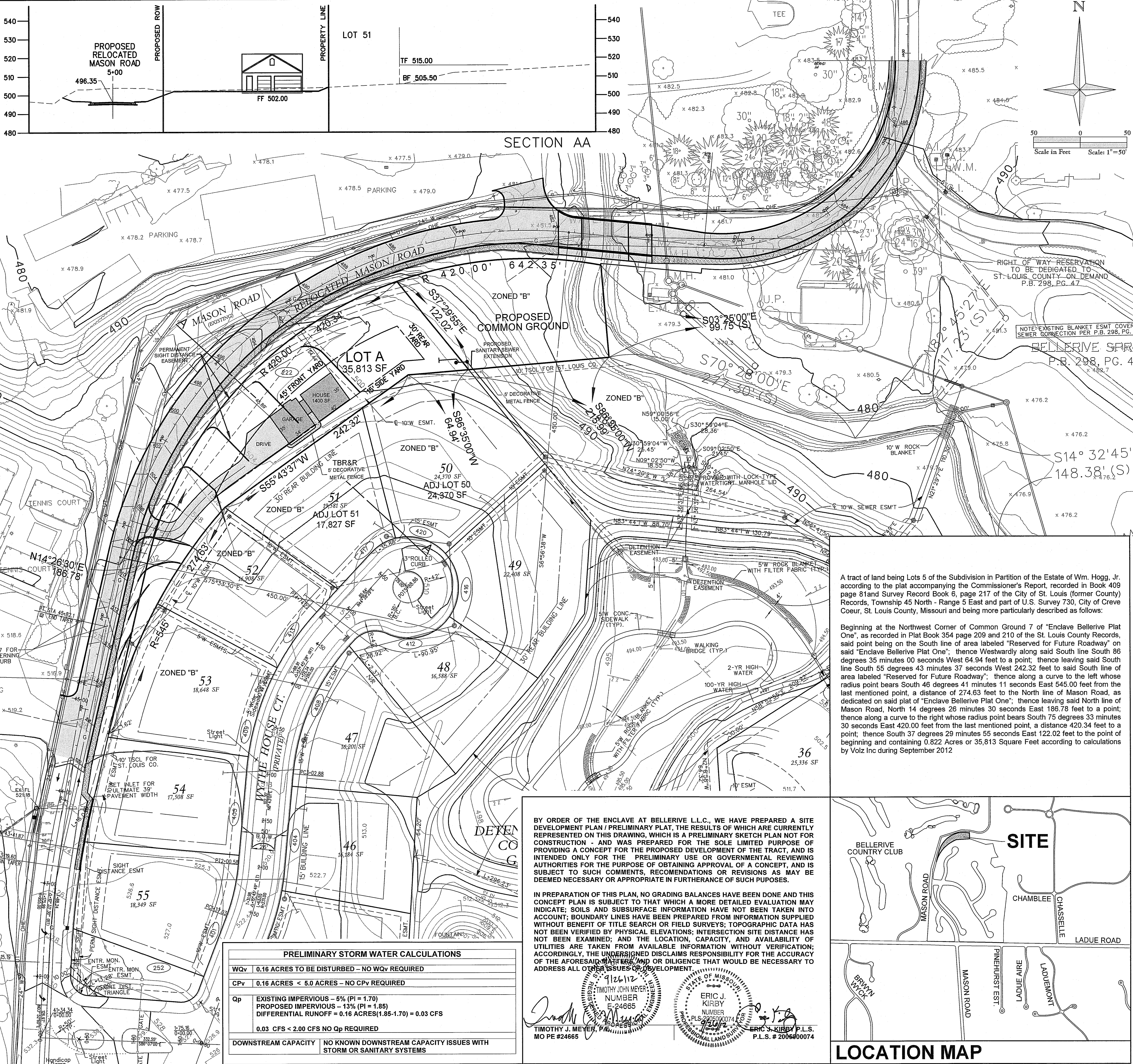
ENCLAVE BELLERIVE ASSOCIATION MAILING ADDRESS: 332 WYTHE HOUSE COURT CREVE COEUR, MO. 63141 (10449 ST. CHARLES ROCK ROAD ST ANN, MO. 63074) ST. LOUIS COUNTY RECORDS	18P530035	244 MULBERRY ROW CT	5.67
VATTEROTT JOHN C TRUSTEE	18P510213	249 MULBERRY ROW CT	0.03
	18P510192	249 MULBERRY ROW CT	0.16
	18P510202	252 MULBERRY ROW CT	0.02
	18P510192	300 WYTHE HOUSE CT	1.42
MAILING ADDRESS: 1144 GULF SHORE BLVD NAPLES, FL 34102	18P510103	328 WYTHE HOUSE CT	0.31
	18P510125	336 WYTHE HOUSE CT	0.34
JAY BECKY A TR	18P510246	229 MULBERRY ROW CT	0.301
KARN SUSAN H TRUSTEE ETAL	18P510279	517 NOMINI HALL CT	0.486
MESSEY GLORIA MILLS TRUST	18P520234	120 TUFTON FARM CT	0.587

MAILING ADDRESS: 1541 MARSH WREN LN NAPLES, FL 34105			
JEM TRANSPORTATION INC	18P530068	128 TUFTON FARM CT	0.582
MARQUITZ DANIEL J & ANITA L H/W	18P520212	124 TUFTON FARM CT	0.602

PROJECT NOTES	
PREPARED BY:	VOLZ INCORPORATED 10848 INDIAN HEAD INDTL. BLVD. ST. LOUIS MO. 63132-1166 314-426-6212 MAIN 314-890-1260 FAX
PREPARED FOR:	THE ENCLAVE AT BELLERIVE L.L.C. 332 WYTHE HOUSE COURT CREVE COEUR, MO. 63141
LOCATOR #	18P 53 0057 - 408 WYTHE HOUSE CT
AREA OF SITE:	35,813 SF
EXISTING ZONING:	B RDD (RESIDENTIAL DESIGN DEVELOPMENT PROCEDURE)
PROPOSED USES:	MAINTENANCE FACILITY WITH LIVING QUATERS
GREENSPACE	29,268 SF / 35,813 SF = 81%
FAR	2,700 SF / 35,813 SF = 8%
GENERAL NOTES	

THIS SITE IS IN THE FOLLOWING DISTRICTS:
METROPOLITAN ST. LOUIS SEWER DISTRICT CREVE COEUR FIRE PROTECTION DISTRICT PARKWAY SCHOOL DISTRICT CREVE COEUR CREEK WATERSHED
THIS SITE IS IN THE FOLLOWING UTILITY SERVICE AREAS:
AMEREN LACLEDE GAS COMPANY MISSOURI AMERICAN WATER COMPANY CHARTER COMMUNICATION (CABLE TV) SBC TELEPHONE COMPANY

- SANITARY SEWER CONNECTIONS SHALL BE AS APPROVED BY THE METROPOLITAN LOUIS SEWER DISTRICT.
- STORMWATER MANAGEMENT SHALL BE DESIGNED PURSUANT TO THE CITY OF CREVE COEUR STANDARDS, AND METROPOLITAN ST. LOUIS SEWER DISTRICT REQUIREMENTS AND DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLE ARE NOT ADEQUATE NATURAL DISCHARGE POINTS.
- THE LOCATION OF STORM AND SANITARY SEWER IMPROVEMENTS ARE APPROXIMATE ONLY. ACTUAL LOCATION SHALL BE DETERMINED BY FIELD CONDITIONS AND SHALL BE INDICATED ON THE IMPROVEMENT PLANS.
- GRADING AND DRAINAGE SHALL BE PER CITY OF CREVE COEUR STANDARDS, AND MSD STANDARDS.
- LANDSCAPING WILL BE PROVIDED AS REQUIRED BY CITY OF CREVE COEUR.
- ENTRANCE, STREET INTERSECTION, CUL-DE-SAC SHALL BE CONSTRUCTED TO THE CITY OF CREVE COEUR STANDARDS.
- SLOPE SHALL NOT EXCEED 3 (HORIZONTAL) : TO 1 (VERTICAL), UNLESS SUPPORTED BY GEOTECHNICAL REPORT AND APPROVED BY THE CITY OF CREVE COEUR STANDARDS.
- THE PROPOSED SIGNAGE FOR THIS SUBDIVISION WILL COMPLY WITH THE CITY OF CREVE COEUR STANDARDS REQUIREMENTS.
- THE PROPOSED LIGHT STANDARDS SHALL BE IN COMPLIANCE TO THE CITY OF CREVE COEUR'S LIGHTING CODE.
- THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SHALL BE LOCATED IN EXCAVATION, OR CONSTRUCTION OF IMPROVEMENTS IN THE FIELD PRIOR TO ANY GRADING, THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMO.



PRELIMINARY STORM WATER CALCULATIONS	
WQv	0.16 ACRES TO BE DISTURBED - NO WQv REQUIRED
CPv	0.16 ACRES < 5.0 ACRES - NO CPv REQUIRED
Qp	EXISTING IMPERVIOUS - 5% (PI = 1.70) PROPOSED IMPERVIOUS - 13% (PI = 1.85) DIFFERENTIAL RUNOFF = 0.16 ACRES(1.85-1.70) = 0.03 CFS 0.03 CFS < 2.00 CFS NO Qp REQUIRED
DOWNSTREAM CAPACITY	NO KNOWN DOWNSTREAM CAPACITY ISSUES WITH STORM OR SANITARY SYSTEMS

BY ORDER OF THE ENCLAVE AT BELLERIVE L.L.C., WE HAVE PREPARED A SITE DEVELOPMENT PLAN / PRELIMINARY PLAN, THE RESULTS OF WHICH ARE CURRENTLY REPRESENTED ON THIS DRAWING, WHICH IS A PRELIMINARY SKETCH PLAN NOT FOR CONSTRUCTION - AND WAS PREPARED FOR THE SOLE LIMITED PURPOSE OF PROVIDING A CONCEPT FOR THE PROPOSED DEVELOPMENT OF THE TRACT, AND IS INTENDED ONLY FOR THE PRELIMINARY USE OR GOVERNMENTAL REVIEWING AUTHORITIES FOR THE PURPOSE OF OBTAINING APPROVAL OF A CONCEPT, AND IS SUBJECT TO SUCH COMMENTS, RECOMMENDATIONS OR REVISIONS AS MAY BE DEEMED NECESSARY OR APPROPRIATE IN FURTHERANCE OF SUCH PURPOSES.

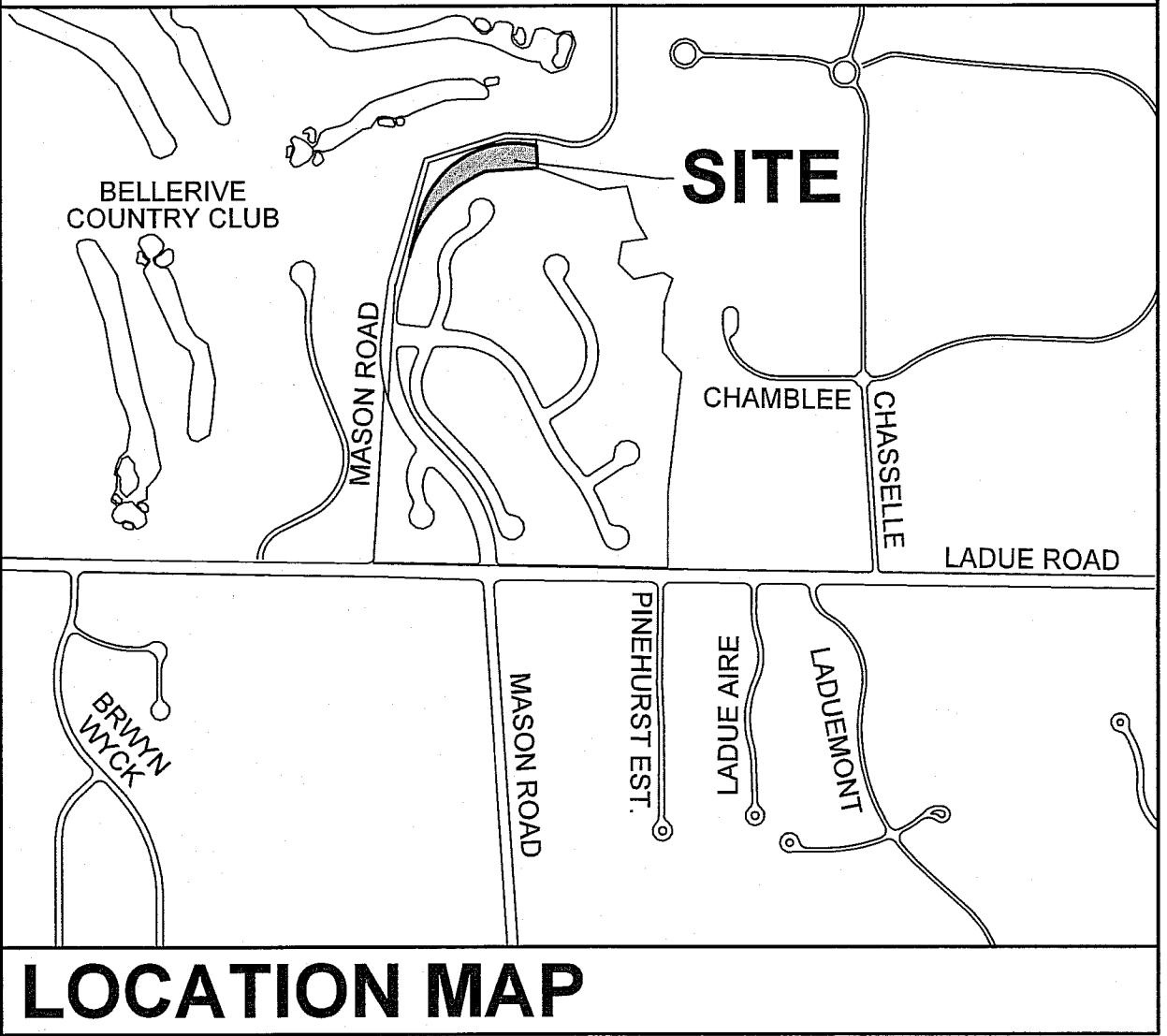
IN PREPARATION OF THIS PLAN, NO GRADING BALANCES HAVE BEEN DONE AND THIS CONCEPT PLAN IS SUBJECT TO THAT WHICH A MORE DETAILED EVALUATION MAY INDICATE; SOILS AND SUBSURFACE INFORMATION HAVE NOT BEEN TAKEN INTO ACCOUNT; BOUNDARY LINES HAVE BEEN PREPARED FROM INFORMATION SUPPLIED WITHOUT BENEFIT OF TITLE SEARCH OR FIELD SURVEYS; TOPOGRAPHIC DATA HAS NOT BEEN VERIFIED BY PHYSICAL ELEVATIONS; INTERSECTION SITE DISTANCE HAS NOT BEEN EXAMINED; AND THE LOCATION, CAPACITY, AND AVAILABILITY OF UTILITIES ARE TAKEN FROM AVAILABLE INFORMATION WITHOUT VERIFICATION; ACCORDINGLY, THE UNDERSIGNED DISCLAIMS RESPONSIBILITY FOR THE ACCURACY OF THE AFORESAID INFORMATION, AND/OR DILIGENCE THAT WOULD BE NECESSARY TO ADDRESS ALL OTHER ISSUES OF DEVELOPMENT.

TIMOTHY J. MEYER, P.E.
MO PE #24665

ERIC J. KIRBY, P.E.
P.L.S. # 200600074

A tract of land being Lots 5 of the Subdivision in Partition of the Estate of Wm. Hogg, Jr. according to the plat accompanying the Commissioner's Report, recorded in Book 409 page 81 and Survey Record Book 6, page 217 of the City of St. Louis (former County) Records, Township 45 North - Range 5 East and part of U.S. Survey 730, City of Creve Coeur, St. Louis County, Missouri and being more particularly described as follows:

Beginning at the Northwest Corner of Common Ground 7 of "Enclave Bellerive Plat One", as recorded in Plat Book 354 page 209 and 210 of the St. Louis County Records, said point being on the South line of area labeled "Reserved for Future Roadway" on said "Enclave Bellerive Plat One"; thence Westwardly along said South line South 86 degrees 35 minutes 00 seconds West 64.94 feet to a point; thence leaving said South line South 55 degrees 43 minutes 37 seconds West 242.32 feet to said South line of area labeled "Reserved for Future Roadway"; thence along a curve to the left whose radius point bears South 46 degrees 41 minutes 11 seconds East 545.00 feet from the last mentioned point, a distance of 274.63 feet to the North line of Mason Road, as dedicated on said plat of "Enclave Bellerive Plat One"; thence leaving said North line of Mason Road, North 14 degrees 26 minutes 30 seconds East 186.78 feet to a point; thence along a curve to the right whose radius point bears South 75 degrees 33 minutes 30 seconds East 420.00 feet from the last mentioned point, a distance 420.34 feet to a point; thence South 37 degrees 29 minutes 55 seconds East 122.02 feet to the point of beginning and containing 0.822 Acres or 35,813 Square Feet according to calculations by Volz Inc during September 2012



THE ENCLAVE AT BELLERIVE L.L.C.
332 WYTHE HOUSE COURT
CREVE COEUR, MO. 63141

VOLZ
Incorporated
10848 Indian Head Indtl. Blvd.
St. Louis, MO 63132-1166
314.426.6212 Main - 314.890.1260 Fax
www.volzinc.com

222 NORTH MASON ROAD

A TRACT OF LAND BEING LOTS 4 AND 5 OF THE SUBDIVISION IN PARTITION OF THE ESTATE OF WM. HOGG, JR. ACCORDING TO THE PLAT ACCOMPANYING THE COMMISSIONER'S REPORT, RECORDED IN BOOK 409 PAGE 81 AND SURVEY RECORD BOOK 6, PAGE 217 OF THE CITY OF ST. LOUIS (FORMER COUNTY) RECORDS, AND PART OF FRACTIONAL SECTION 8, TOWNSHIP 45 NORTH - RANGE 5 EAST AND PART OF U.S. SURVEY 730, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI

SITE DEVELOPMENT PLAN
& PRELIMINARY PLAN

Base Map No. 16P
MSD P # XXXXX-XX
VOLZ JOB# 7607-25
H:\CAD\7607-25\7607-25 4-11-2012\SUP.DGN

09-27-2012
1

SECOND SUBSTITUTE BILL NUMBER 4008

ORDINANCE NUMBER 3037

AN ORDINANCE AMENDING THE OFFICIAL ZONING MAP OF THE CITY OF CREVE COEUR AS DESCRIBED IN ORDINANCE NO. 1903 TO REZONE APPROXIMATELY 44.11 ACRES OF LAND FROM 'A', SINGLE FAMILY RESIDENTIAL DISTRICT TO B/RDD SINGLE FAMILY RESIDENTIAL DISTRICT FOR THE PROPERTY AT 120 AND 206 N. MASON ROAD AND COMMONLY KNOWN AS THE BAER PROPERTY, DESCRIBED AS A TRACT OF LAND BEING PART OF LOTS 4 AND 5 OF THE SUBDIVISION IN PARTITION OF THE ESTATE OF WILLIAM HOGG, JR. AND PART OF SECTION 8, TOWNSHIP 45 NORTH, RANGE 5 EAST, IN THE CITY OF CREVE COEUR, ST. LOUIS COUNTY MISSOURI

WHEREAS, C. F. Vatterott and Company has submitted an application to rezone 44.11 acres at 120 and 206 Mason Road, commonly known as the Baer property, and

WHEREAS, in accordance with Sections 26-31, 26-50.3, and 26-115 of the Zoning Ordinance, the applicant has submitted a Site Development Plan and Preliminary Plat to the Department of Community Development, and

WHEREAS, on Monday, October 4, 2004, the Planning and Zoning Commission reviewed the rezoning request and accompanying Site Development Plan/Preliminary Plat and by a 4-3 vote recommended approval of the rezoning for the property from Single Family "A" Residential District to B/RDD Single Family Residential District on the condition that the property be developed in accordance with the approved Site Development Plan/Preliminary Plat, received October 1, 2004, by the Department of Community Development or as further revised as required by the City of Creve Coeur and other conditions, and

WHEREAS, the City Council of the City of Creve Coeur, Missouri, held a Public Hearing thereon at the Creve Coeur Government Center on October 25, 2004, beginning at 7:00 p.m. or immediately following the close of the previous Public Hearing, after having given fifteen (15) days prior public notice of the time, place and purpose of said hearing by publication in the St. Louis Countian on October 8, 2004, and in the West County Journal on October 10, 2004, newspapers of general circulation in the City of Creve Coeur and after other written notice was given all according to the provisions of law made and provided for such notices and hearings, and

WHEREAS, all persons who presented themselves at said Public Hearing and desiring to be heard were given an opportunity to be heard, and

WHEREAS, the applicant submitted a revised plan to the City, which was forwarded to the Planning and Zoning Commission for review due to substantive changes to the plan originally reviewed by the Commission, and

WHEREAS, on Monday, January 3, 2005, the Planning and Zoning Commission reviewed the rezoning request accompanied by the revised plan and recommended approval of the request on certain conditions, and

WHEREAS, on Thursday, January 6, 2005, the City Council introduced and amended a substitute bill for the rezoning and the revised plan, and

WHEREAS, on Thursday, January 13, 2005, the applicant submitted a further revised plan to the City that eliminated proposed inclusion of ground outside City boundaries in the development, and

WHEREAS, a copy of the proposed ordinance has been made available for public inspection during this time period and prior to its final consideration by the City Council; and the proposed ordinance having been read by title in open meeting three times before final passage by the City Council, and

WHEREAS, the City Council being fully informed finds that rezoning the property on the terms set forth herein would be in harmony with and bear a substantial relation to the public welfare, health, safety, comfort and convenience of the citizens of the City of Creve Coeur and in the public interest and in good zoning practice, in particular because of the public benefit that will result from the proposed road improvements that will be required by St. Louis County and the resulting layout of the development.

NOW, THEREFORE, be it ordained by the City Council of the City of Creve Coeur, Missouri, as follows:

SECTION 1: The Official Zoning Map of the City of Creve Coeur as described and defined in Ordinance No. 1903, Creve Coeur Zoning Ordinance shall be amended to rezone 44.11 acres at 120 and 206 N. Mason Road and commonly known as the Baer property from Single Family "A" Residential District to "B/RDD" Single Family Residential District as described in the legal description filed with the Department of Community Development and shown on the Site Development Plan as follows:

Legal Description

A tract of land being Lots 4 and 5 of the subdivision partition of the "Estate of William Hogg, Jr." according to the plat accompanying the Commissioner's report, recorded in Book 409 Page 81 of the City of St. Louis (former County) records, and part of Section 8, Township 45 North Range East and Part of U.S. Survey 730 and being more particularly described as follows:

Beginning at the intersection of the west line of property described in the deed to Eileen A. Scott as recorded in Book 13418 Page 1014 of the St. Louis County records with the north line of Ladue Road, 60 foot wide; thence westwardly along said north line north 88 degrees 45 minutes 00 seconds west 1,187.23 feet to a point on the east side of Mason Road, as widened; thence northwardly along said east line of Mason Road north 29 degrees 51 minutes 24 seconds west 45.70 feet, north 00 degrees 33 minutes 41 seconds east 56.85 feet, north 02 degrees 42 minutes 39 seconds east 148.50 feet, north 01 degrees 14 minutes 30 seconds east 255.06 feet, north 03 degrees 30 minutes 00 seconds east 688.26 feet and north 15 degrees 15 minutes 00 seconds east 541.68 feet to a point on the south line of Mason Road, 40 feet wide; thence eastwardly along said south line north 72 degrees 55 minutes 00 seconds east 342.56 feet and south 87 degrees 39 minutes 00 seconds east 126.47 feet to a point on the centerline of Hibler Creek; thence along the centerline of Hibler Creek the following courses and distances: south 03 degrees 38 minutes 00 seconds east 121.24 feet, south 70 degrees 41 minutes 00 seconds east 277.30 feet, north 82 degrees 42 minutes 00 seconds east 117.04 feet, south 14 degrees 47 minutes 00 seconds east 148.30 feet, south 29 degrees 34 minutes 00 seconds east 93.55 feet, south 81 degrees 59 minutes 00 seconds west 106.20 feet, south 08 degrees 47 minutes 00 seconds west 96.21 feet, south 45 degrees 05 minutes 00 seconds east 91.30 feet, north 77 degrees 27 minutes 00 seconds east 126.82 feet, south 57 degrees 48 minutes 00 seconds east 48.90 feet, south 19 degrees 34 minutes 00 seconds west 108.25 feet, south 02 degrees 17 minutes 00 seconds west 207.65 feet, and south 42 degrees 36 minutes 00 seconds east 120.50 feet to a point; thence south 06 degrees 30 minutes 00 seconds west 514.00 feet to a point on the west line of aforesaid Eileen A. Scott property; thence southwardly along said west line, south 00 degrees 00 minutes 00 seconds east 326.39 feet to the point of beginning and containing 44.11 acres according to calculations by Volz, Inc. during November 2003.

SECTION 2: As per Sections 26-31, 26-50.3 and 26-115 of the Zoning Ordinance, the approval of said rezoning request is expressly subject to and conditioned upon the property being developed in accordance to the Site Development Plan/Preliminary Plat, received January 13, 2005, by the Department of Community Development or as further revised as required and approved by the City of Creve Coeur, and subject to the following conditions:

1. The applicant or a public jurisdiction shall acquire right-of-way from the property, addressed as 338 N. Mason Road, for the placement of Mason Road as shown on the plan. To the extent the applicant acquires excess property beyond that needed for right-of-way, such excess property shall be incorporated into the development as additional open space and common ground. To the extent any

- such excess property is acquired by a public jurisdiction, the City would encourage that public entity to leave the space as undeveloped open space.
2. The applicant shall provide architectural elevations, including proposed building materials, for review concurrent with Subdivision Improvement Plan and Final Subdivision Plat submittals, consistent with the quality shown in the materials presented during the Rezoning review process. The submission shall also include a streetscape rendering, proposed lighting standards, and an elevation of the monument sign and entrance area.
 3. The applicant shall construct two hundred (200) foot long dedicated right and left turn lanes to serve the north and east legs of the Mason/Ladue intersection, as directed by the St. Louis County Department of Highway and Traffic.
 4. The applicant shall install or modify traffic and pedestrian signals as directed by the St. Louis County Department of Highway and Traffic. The poles and mast arms on the signals shall be coated black in a similar manner as the Ladue Road and Beacon Hill intersection.
 5. Sidewalks shall be installed by the developer along the interior streets within the subdivision, along the east side of Mason Road (south of the bridge to Ladue Road), along the west side of Mason Road from Ladue Road to the entrance of the western portion of the subdivision, and along Ladue Road frontage. The sidewalks shall be five (5) feet wide and placed (5) feet from the back of curb. Within the 5-foot setback, the applicant shall install street trees at 30-foot on center as directed by the City of Creve Coeur.
 6. The applicant shall meet sight distance standards as directed by St. Louis County Department of Highway and Traffic.
 7. The applicant shall construct the subdivision streets with raised curbing at six (6) inches above the street grade to the top of curb.
 8. The applicant shall provide a Tree Preservation Plan for review as directed by Section 22A-32 of the Subdivision Ordinance.
 9. The applicant shall provide Improvement Plans for review as directed by section 22A-14 of the Subdivision Ordinance.
 10. The applicant shall provide a Final Subdivision Plat for review as directed by section 22A-15 of the Subdivision Ordinance.
 11. The applicant shall provide a Landscape Plan with submission for approval of the Final Subdivision Plat. The plan shall include street trees, as directed by the City of Creve Coeur.
 12. The applicant shall construct and maintain the stormwater retention area as an integral part of the site by installing landscaping and other aesthetic features and including a measure to maintain the features in the subdivision indentures, which shall be submitted to the City Attorney for review.
 13. All Mason Road improvements shall be constructed to St. Louis County standards as directed by St. Louis County.
 14. Because the entire layout of the proposed development is dependent upon the applicant making the improvements to Mason Road as required by St. Louis County, and because the approval of the rezoning and the plans is expressly conditioned upon realization of the public benefit that will result from the improvements and the desirability of the development occurring in accordance with the proposed layout as shown on the Site Development Plan and Preliminary Plat, the rezoning and plan approval shall not take effect and no grading or land disturbance permits shall be issued until the applicant enters into a binding agreement to complete the improvements with St. Louis County and provides a copy thereof to the City. Such agreement must include the removal of the abandoned Mason Road pavement and existing bridge.
 15. Fencing along public street frontage shall not be stockade or chain link, but rather decorative metal, and shall provide spacing to allow ample visibility of the development and its common ground from Mason and Ladue Roads.
 16. The applicant shall restore the monument sign and landscaping at the Bellerive Springs subdivision entrance, as needed, as determined by City staff, of a quality that is consistent with its original condition.
 17. Individual homes shall not be constructed with more than 10% vinyl siding.
 18. Under Code Section 26-115.7, substantial construction or development shall not be deemed completed prior to substantial completion of relocated Mason Road from Ladue north to Lot 53, but the City will

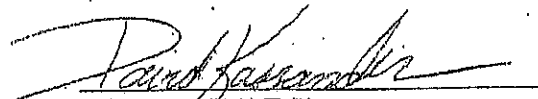
not invoke its authority to rezone the property under this section so long as construction of relocated Mason Road is diligently performed and completed no later than thirty (30) months after approval of design plans by St. Louis County.

19. A berm shall be constructed along the east side of Mason Road and adequate landscaping installed in order to screen from the view of motor vehicle operators on Mason Road any front entry garages on Lots 7 through 15 as shown on the Site Development Plan/Preliminary Plat, received January 13, 2005, by the Department of Community Development, and similar screening shall be included for any other lots facing Ladue or Mason Road with front entry garages.
20. The applicant shall not enclose the open areas on the north side of the Mason and Ladue intersection and shall leave the areas open for public access. In addition, the applicant shall install benches or other appropriate street furniture within this area and provide a pedestrian connection from the furniture to the sidewalk. ~~The final amount of area open to public space shall be resolved in conjunction with approval of the final plat and improvement plans.~~

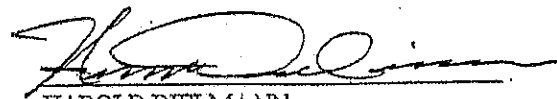
SECTION 3: As set forth in Section 26-115 of the Zoning Ordinance of the City of Creve Coeur, Site Development Plans approved by the City of Creve Coeur shall be valid for a period of up to one (1) year from the date of approval. After one year, a Site Development Plan will no longer be valid unless an extension is granted. The City of Creve Coeur may grant one, one (1) year extension prior to the expiration of the Site Development Plan upon written request of the applicant submitted to the City at least 180 days prior to the expiration date and granted prior to the expiration date.

SECTION 4: This Ordinance shall be in full force and effect upon the expiration of fifteen (15) days after adoption by the City Council and the signing thereof the Mayor.

ADOPTED THIS 24th DAY OF JANUARY, 2005.


DAVID KASSANDER
PRESIDENT OF CITY COUNCIL

APPROVED THIS 24th DAY OF JANUARY, 2005.


HAROLD DIELMANN
MAYOR

ATTEST:


LAVERNE COLLINS, CMC
CITY CLERK



city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141
(314) 432-6000 • Fax (314) 872-2539 • Relay MO 1-800-735-2966
www.creve-coeur.org

APPLICATION TO PLANNING AND ZONING COMMISSION #12-032 A MINOR SITE DEVELOPMENT PLAN FOR A "FRONT-YARD" PRIVACY FENCE ALONG GALLAGHER ROAD

FOR THE MEETING OF: November 5, 2012

LOCATION: 12955 Barbezieux Drive

REQUEST:

Furqan Raja, owner of 12955 Barbezieux Drive, has submitted an application for approval of a five-foot wood privacy fence along the rear property line adjoining the south side of Gallagher Road within the required "front yard" setback along Gallagher Road. The functional front of the property is along Barbezieux Drive and the rear is along Gallagher Road, east of Fernview Drive.

ADDITIONAL INFORMATION:

Section 405.640 requires that fences located within the front yard setback or along street right-of-way, within the area equivalent to the front yard setback of the applicable zoning district, require approval by the Planning and Zoning Commission. The property is zoned "D" Single Family Residential and has a front yard setback requirement of 20 feet.

Key Issues:

- Maintaining open green spaces
- Visual scenic impact along Gallagher Road

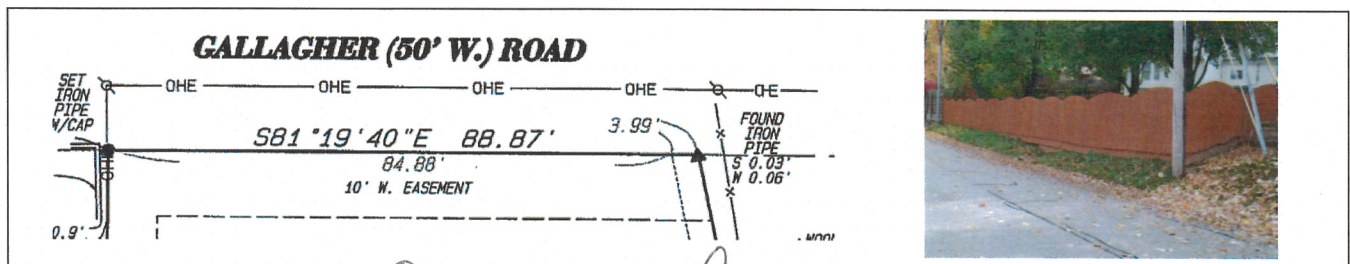
Comp. Plan References

- Residential Neighborhoods
- Design Guidelines

Zoning Code References

- 405.280 "D" Single-family Residential
- 405.640 Fences within the Front Yard Section and along Street Right-of-Way

APPLICANTS: Furqan Raja
12955 Barbezieux Drive
Creve Coeur, MO 63141



REPORT PREPARED BY:

Whitney Kelly
Whitney Kelly, AICP, City Planner

Date

ATTACHMENTS: Applicant's Materials Submitted on October 2, 2012

BACKGROUND

The subject property is located east of Fernview Drive in the Bellerive Estates Subdivision. The property is zoned "D" Single Family Residential and has a front yard setback requirement of 20 feet along Gallagher, within which a fence is not allowed without Planning and Zoning Commission approval. The prior property owner submitted a building permit for a fence on August 9, 2012, at which time they were made aware of the requirement. After receiving no response to additional follow-up regarding Planning and Zoning Commission approval, the City's Building Inspector went to the property and found that the fence had been installed without any approvals or inspections. Further, the fence was placed approximately eight feet over the property line into the public right-of-way. Staff contacted the owners and found that the property was sold to Mr. Raja, who was notified of the violation and has submitted an application for approval of the fence. The applicant is currently seeking a revised survey of the property to verify the location of the fence, however, such drawing has not been submitted at this time. The City cannot approve any structure beyond the property boundary. Further review of the proposal includes the assumption that the fence will have to be relocated to the property boundary. (The fence to the east of the subject property appears to be pre-existing prior to the annexation of this area by the City of Creve Coeur in 1996). All such requests are regulated under Section 405.640, as follows:

405.640 Fences within the Front Yard Section and along Street Right-of-Way. No fence shall be located within the front yard setback or along street right-of-way, within the area equivalent to the front yard setback of the applicable zoning district, unless specifically approved by site development plan approval in accordance with Section 405.1080.

Planning and Zoning Commission must approve a minor site development plan; City Council review is not required.

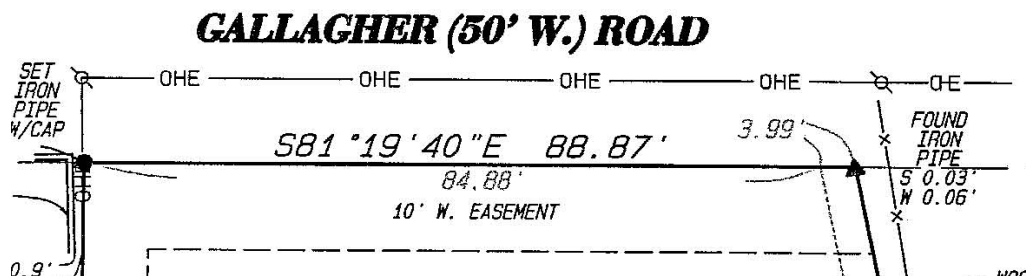
LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

DIRECTION	USE	ZONED	SEPARATED BY
North	Single family residences	"D" Single Family Residential	Gallagher Rd.
South	Single family residences	"D" Single Family Residential	Barbezieux Dr.
East	Single family residences	"D" Single Family Residential	NA
West	Single family residences	"D" Single Family Residential	NA

FENCE PLACEMENT AND DESIGN

The fence is a five-foot, arched design, wood privacy fence that would run along the north property line along Gallagher Road for approximately 85 feet. Below is a close up of the site plan:



Below is a photo of the northwest corner of the property where the stake marks the property boundary:



ANALYSIS

The Zoning Code does not provide guidance in evaluating requests for fences within the setback, except that no fence shall exceed six feet in height.

The Comprehensive Plan and Design Guidelines provide some direction for review of fences with the following:

Comprehensive Plan: Residential Preservation and Economic Development

2. Encourage the continued preservation of the suburban landscape character of the area, its open green spaces, and stream corridors. New development or redevelopment should protect and enhance stream channels, preserving remaining riparian corridors, preserve trees and encourage re-establishment of natural streams, where feasible. The use of pervious paving materials and vegetated swales to manage storm water in new development and redeveloping areas is encouraged.
6. Require that new development or redevelopment be compatible with the character of the surrounding neighborhood with regard to lot frontage, building setbacks, building lines, building scale, and lot coverage. (p.44-45)

Design Review Guidelines: F. Screening (Fences and Walls)

1. All new sound walls, masonry walls or fences are to be designed to minimize visual monotony through changes in plane, height, material, texture or significant landscape massing.
2. The design of fencing, sound walls, trash enclosures, and similar site elements is to be compatible with the architecture of the main buildings and should use similar materials.
3. All fencing should be designed as an integrated part of the site, rather than as a separate fence, such as a planter wall or continuation of an architectural wall feature.

5. In highly visible public areas where fencing is needed, decorative fencing is encouraged. (p.18-19)

As discussed above, the existing fence was illegally placed by the prior property owner. The current request to locate the fence along the property line would provide the property much more privacy in the rear yard where most property owners would expect a higher level of privacy. It also provides a degree of safety for children from Gallagher Road. Similar arguments are typically cited in such applications. However, in doing so, this would expand the amount of privacy fencing in this immediate vicinity that reduces the openness of the Gallagher Road view shed which is inconsistent with the Comprehensive Plan. Yet the impact on the surrounding property-owners and those traveling along Gallagher Road should be minimal due to the limited amount of traffic in the area. Whether or not this expansion represents an incremental change or a step too far in the wrong direction is largely a matter of visual preference and consideration of the design details. The use of wood would be consistent with the adjoining property. However, the use of a more open fence design might also serve to reduce the visual impact of the fence and any losses in privacy could be mitigated with evergreen plantings.

CONCLUSION

If the members of the Planning Commission find the applicant's reasons for the fence sufficiently compelling, they can approve the relocation of the current five foot arched-designed, wood privacy fence to the property boundary. If the request is denied, the applicant may construct the fence along the 20 foot setback line up to a maximum height of six feet.

ACTION

Action by the Planning Commission should be a vote on a motion for approval, approval with conditions, or deferral. Action by the City Council is not required.

MOTION

The following is an example motion for this application:

"I move to approve the site plan for a five foot wood privacy fence with an arched design at the property line at 12955 Gallagher Road submitted with Application #12-032, as presented to the Planning and Zoning Commission on November 5, 2012" (conditions may be added by separate motion).

APPENDIX 1: COMPREHENSIVE PLAN

Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

Included and attached by reference. See body of report for specific excerpts.

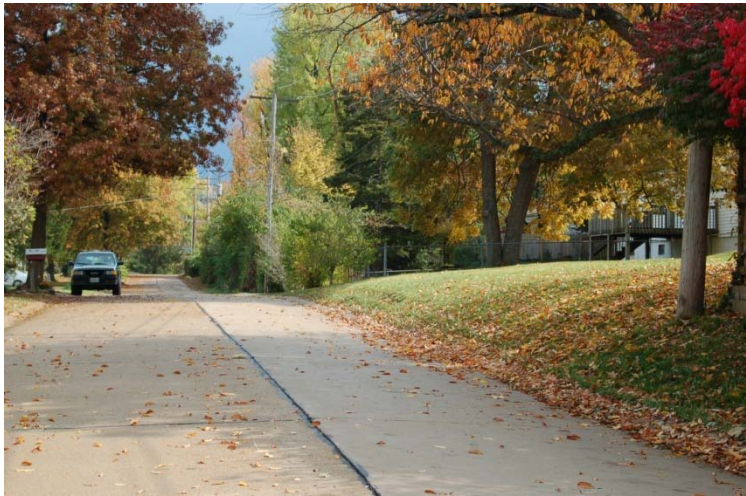
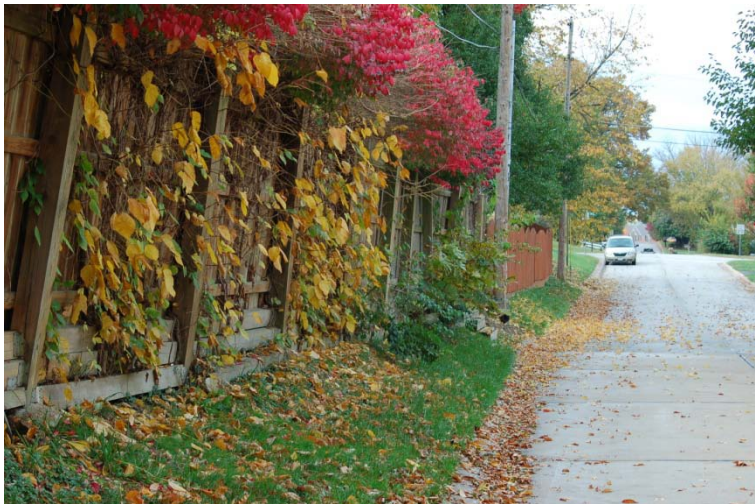
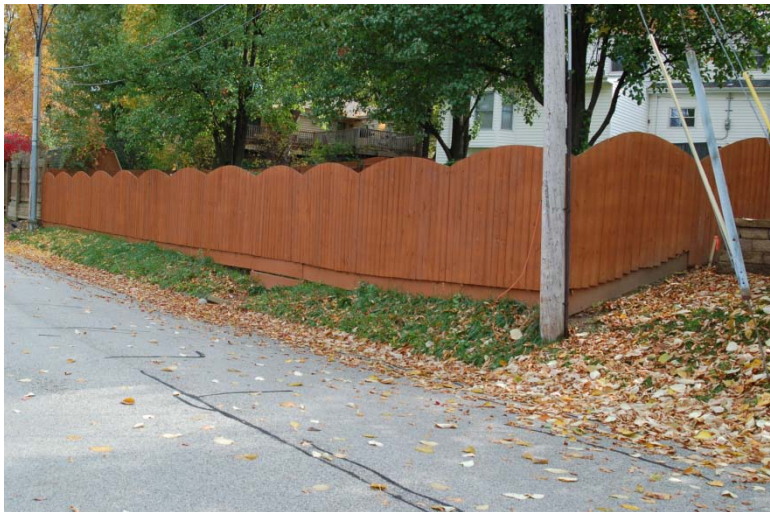
APPENDIX 3: AERIAL PHOTO



St. Louis County Property Viewer



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APPENDIX 4: SITE PHOTOGRAPHS	Photo Date: 10/22/2012
 A photograph showing a paved road (Gallagher Drive) lined with trees displaying autumn foliage in shades of orange, yellow, and red. A dark car is visible in the distance on the left side of the road. The ground is covered with fallen leaves.	Description: View of Gallagher Drive looking east from the neighbor's eastern property line
 A photograph showing a wooden fence on the left, heavily covered with climbing vines with bright red and yellow leaves. To the right is a paved road. In the background, another fence and trees are visible along the road.	Description: View of the neighbor's fence and the new fence on the subject property in the background looking west along Gallagher Dr.
 A photograph showing a wooden fence with a scalloped top edge running along a paved area. A utility pole stands to the right of the fence. Trees and a house are visible in the background.	Description: View looking southeast from Gallagher Drive at the subject property and fence that extends to the utility pole.

RECEIVED

OCT 02 2012

PLANNING DEPT.

Furqan Raja

12955 Barbezieux Dr
Creve Coeur, MO 63141
T (612) 600-7252
furqanraja@gmail.com

September 30, 2012

Subject: Fence surrounding property at 12955 Barbezieux Drive, Creve Coeur, MO 63141

Dear Planning and Zoning Commission Members,

My wife and I completed the purchase of a home located at the above mentioned address and closed on September 19th, 2012. Throughout the process, both seller(Amanda and Justin Lester) and buyers (Farheen and Furqan Raja) were represented by Real Estate Agents. I have included as Appendix A the sellers' disclosure document - wherein it is clearly mentioned that the sellers erected a fence around the property as an "improvement" to the property. I do not have exact dates, but according to our immediate neighbor this was erected around November 2010.

On Friday, September 21, 2012, my painting contractor informed me that Creve Coeur City Chief Building Official Steve Unser left his card at my new residence and asked that I call him in the next few days. I called Steve Unser on Monday, September 24, 2012 and was informed that the previous owners of the property had not properly closed out a permit for the fence and that I needed to speak with Whitney Kelly, City Planner. Steve also informed me that he called the previous owner, who explained that he believed that his fencing company would take out all the appropriate permits and trusted him to do that and that he had no idea about this regulation. I spoke with Whitney and she informed me that the previous owner never applied for a zoning and planning commission hearing in order to grant permission to erect the fence. The issue as I understand it, is that the northern fence boundary abuts Gallagher Road, which is a "right of way" road. Therefore a fence in this situation requires Zoning and Planning commission approval under section 405.640 as noted below.

"Fences Within The Front Yard Section And Along Street Right-Of-Way. No fence shall be located within the front yard setback or along street right-of-way, within the area equivalent to the front yard setback of the applicable zoning district, unless specifically approved by site development plan approval in accordance with Section 405.1080, or approved by the Zoning Administrator in accordance with Section 405.460"

I humbly request that the Zoning and Planning commission approve the fence as it stands. My request is based on the following facts:

- a)One of the major selling points for my wife and I when we considered this house was the presence of this fence which ensures the relative safety and security of our two young children. In fact, the previous owners even had a backyard play-set which we also intended to purchase.
- b)My wife and I were not aware of any issues surrounding the fence, nor did this come up as an issue throughout the purchasing process and was not disclosed to us in the proceedings.
- c)The fence was constructed in 2010, almost 2 years ago, and even the sellers were unaware of this regulation.

d)The property immediately to the the left side (as facing Barbezieux Rd.) has a similar fence and in fact is actually taller than our fence. Another property 2 houses down from our property also has a chain link fence in the same property line. As exhibit B, I have included pictures of our fence, the neighbors' fence and the fence down the street.

e)Even though the seller did not obtain the appropriate permissions by the Zoning and Planning Commission, I come to you in good faith and have presented to you, to the best of my knowledge the facts pertaining to this issue.

As a new Creve Coeur resident, I pledge to fully respect the laws pertaining to Zoning and Planning, housing structures and Code regulations in the future.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Furqan Raja', with a horizontal line drawn underneath the signature.

Furqan Raja

APPENDIX "A"

07/26/2012 12:13 FAX 8009641888

PHARMA RETAIL

001/005

This document has legal consequences.
If you do not understand it, consult your attorney.

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Form # 2091

6/12

SELLER'S DISCLOSURE STATEMENT

To be completed by SELLER concerning 12955 Barbezieux Drive Creve Coeur, MO 63141 (Property Address)
located in the municipality of (if incorporated), County of Saint Louis, Missouri.

Note: If a Seller knows or suspects some condition which might lower the value of the property being sold or adversely affect the Buyer's decision to buy the property, then the Seller needs to disclose it. This statement will assist a Buyer in evaluating the property being considered. Real estate brokers and agents involved in the sale do not inspect the property for defects, and they cannot guarantee the accuracy of the information in this form.

TO THE SELLER: Your truthful disclosure of the condition of your property gives you the best protection against future charges that you violated your legal obligation to a Buyer by concealing a material defect(s), lead-based paint, use as a site for methamphetamine production or storage and/or any other disclosure required by law. Your knowledge of the property prior to your ownership may be relevant. In the case of a material defect, for example, if information that you possess indicates some persistent pattern of a problem not completely remedied, such information should be included in this disclosure in order to achieve full and honest disclosure. Your answers or the answers you fail to provide, either way, may have legal consequences, even after the closing of the sale. This questionnaire should help you meet your disclosure obligation, but it may not cover all aspects of your property. If you know of or suspect some condition which would substantially lower the value of the property, impair the health or safety of future occupants, or otherwise affect a Buyer's decision to buy your property, then use the space at the end of this form to describe that condition.

TO THE BUYER: Since these disclosures are based on the Seller's knowledge, you cannot be sure that there are, in fact, no problems with the property simply because the Seller is not aware of them. The answers given by the Seller are not warranties of the condition of the property. Thus, you should condition your offer on a professional inspection of the property. You may also wish to obtain a home protection plan/warranty. Due to the variety of insurance, requirements, products, and arrangements Buyer should contact appropriate party to determine insurance coverage needed.

Conditions of the property that you can see on a reasonable inspection should either be taken into account in the purchase price or you should make the correction of these conditions by the Seller a requirement of the sale contract.

If you sign a contract to purchase the property, that contract, and not this disclosure statement, will provide for what is to be included in the sale. So, if you expect certain items, appliances, or equipment included, you must specify them in the contract.

SUBDIVISION, CONDOMINIUM, VILLA, CO-OP OR OTHER SHARED COST DEVELOPMENT (if applicable)

- (a) Development Name Bellvue Estates Type of Ownership: ☒ Fee-Simple ☐ Condominium ☐ Co-Op
Contact _____ Phone _____
- (b) Mandatory Assessment: #1 _____ \$ 20.00 per: ☐ month ☐ quarter ☐ half-year ☒ Year
Mandatory Assessment: #2 _____ \$ _____ per: ☐ month ☐ quarter ☐ half-year ☐ Year
- (c) Mandatory Assessment(s) include:
☒ Entrance sign/structure ☐ Street maintenance ☐ Common ground ☐ Snow removal of common area
☐ Snow removal specific to this dwelling ☒ Landscaping of common area ☐ Landscaping specific to this dwelling
☐ Clubhouse ☐ Pool ☐ Tennis court ☐ Exercise area ☐ Reception facility ☐ Water ☐ Sewer ☐ Trash removal
☐ Doorman ☐ Cooling ☐ Heating ☐ Security ☐ Elevator ☐ Other common facility _____
☐ Assigned parking space(s): how many _____ Identified as _____ ☐ Some insurance ☐ Real estate taxes
☐ Other specific item(s) _____
☐ Exterior Maintenance of this dwelling covered by Assessment: _____
- (d) Optional Assessment(s)/Membership(s): Please explain. _____
- (e) Are you aware of any existing or proposed special assessments? ☐ Yes ☒ No
- (f) Are you aware of any special taxes and/or district improvement assessments? ☐ Yes ☒ No
- (g) Are you aware of any condition or claim which may cause an increase in assessment or fees? ☐ Yes ☒ No
- (h) Are you aware of any material defects in any common or other shared elements? ☐ Yes ☒ No
- (i) Are you aware of any existing indentures/restrictive covenants? ☐ Yes ☒ No
- (j) Are you aware of any violation of the indentures/restrictions by yourself or by others? ☐ Yes ☒ No
- (k) Is there a recorded street/road maintenance agreement? ☐ Yes ☒ No
- (l) Please explain any "yes" answer you gave for (e), (f), (g), (h), (i), (j) or (k) above. _____

6

HEATING, COOLING AND VENTILATING (Seller is not agreeing that all items checked are being offered for sale.)

- (a) Type of air conditioning: ☒ Central Electric ☐ Central Gas ☐ Window/Wall (Number of window units _____) ☐ Other: _____
- (b) Source of heating: ☐ Electric ☒ Natural Gas ☐ Propane ☐ Fuel Oil ☐ Other: _____
- (c) Heating Equipment: ☒ Forced Air ☐ Hot Water Radiators ☐ Steam Radiators ☐ Radiant ☐ Baseboard ☐ Other: _____
- (d) Areas of house not served by central heating/cooling: Garage
- (e) Additional: ☐ Humidifier ☐ Electronic Air Filter ☐ Media Filter ☐ Attic Fan ☐ Other: _____
- (f) Are you aware of any problems or repairs needed with any item in this section? ☐ Yes ☒ No If "yes", please explain _____

FIREPLACE(S)

- (a) Type of fireplace: ☒ Wood Burning ☐ Vented Gas Logs ☐ Vent Free Gas Logs ☐ Wood Burning Stove ☐ Natural Gas ☐ Propane
- (b) Type of flues/venting:
☒ Functional (properly vented for wood burning and vented gas logs). Number of fireplace(s) 1 Location(s) family room
☐ Non Functional: Number of fireplace(s) _____ Location(s) _____ Please explain _____
- (c) Are you aware of any problems or repairs needed with any item in this section? ☐ Yes ☒ No If "yes", please explain _____

PLUMBING SYSTEM, FIXTURES AND EQUIPMENT

- (a) Water Heater: ☐ Electric ☒ Natural Gas ☐ Propane ☐ Tankless ☐ Other: _____
- (b) Ice maker supply line: ☒ Yes ☐ No
- (c) Jet Tub: ☐ Yes ☒ No
- (d) Lawn Sprinkler System: ☐ Yes ☒ No If yes, date of last backflow device inspection certificate: _____
- (e) Are you aware of any problems or repairs needed in the plumbing system? ☐ Yes ☒ No If "yes", please explain _____

WATER (If well exists, attach Form #2165, Septic/Well Addendum To Seller's Disclosure Statement)

- (a) What is the source of your drinking water? ☒ Public ☐ Community ☐ Well ☐ Other (explain): _____
- (b) If Public, identify the utility company: _____
- (c) Do you have a softener, filter or other purification system? ☐ Yes ☒ No ☐ Owned ☐ Leased/Lease Information _____
- (d) Are you aware of any problems relating to the water system including the quality or source of water or any components such as the curb stop box? ☐ Yes ☒ No If "yes", please explain _____

SEWERAGE (If Septic or Aerator exists, attach Form #2165, Septic/Well Addendum To Seller's Disclosure Statement)

- (a) What is the type of sewerage system to which the house is connected? ☒ Public ☐ Private ☐ Septic ☐ Aerator ☐ Other. If other please explain: _____
- (b) Is there a sewerage lift system? ☐ Yes ☒ No If "yes", is it in good working condition? ☐ Yes ☐ No
- (c) When was the septic/aerator system last serviced? _____
- (d) Are you aware of any leaks, backups, open drain lines or other problems relating to the sewerage system? ☐ Yes ☒ No If "yes", please explain _____

APPLIANCES (Seller is not agreeing that all items checked are being offered for sale.)

- (a) Electrical Appliances and Equipment: ☐ Electric Stove/Range/Cook top ☐ Oven ☒ Built-In Microwave Oven
☒ Dishwasher ☒ Garbage Disposal ☐ Trash Compactor ☒ Wired smoke alarms ☒ Electric dryer "hook up"
☒ Ceiling Fan(s) ☐ Intercom System ☐ Central Vacuum System ☐ Other: _____
- (b) Gas Appliances & Equipment: ☒ Natural Gas ☐ Propane
☒ Oven ☒ Gas Stove/Range/Cook Top ☐ Exterior Lights ☐ Barbecue ☐ Water heater ☐ Tankless Water Heater
☐ Gas dryer (hook up) ☐ Other: _____
- (c) Other Equipment: ☐ TV Antenna ☒ Cable Wiring ☒ Phone Wiring ☒ Network/Data Wiring
☒ Electric Garage Door Opener Number of transmitters 2
☒ Security Alarm System ☒ Owned ☐ Leased/Lease Information: _____
☐ Swimming Pool ☐ Pool Heater ☐ Spa/Hot Tub ☐ Sauna/ Pool/Spa Equipment (list): _____
☒ Satellite Dish ☐ Owned ☐ Leased/Lease Information: _____
☐ Electronic Pet Fence System Number of Collars: _____ ☐ Other: _____
- (d) Are you aware of any items in this section in need of repair or replacement? ☐ Yes ☒ No If "yes", please explain _____

ELECTRICAL

- (a) Type of service panel: ☒ Fuses ☐ Circuit Breakers
 (b) Type of wiring: ☐ Copper ☐ Aluminum ☐ Knob and Tube ☒ Unknown
 (c) Are you aware of any problems or repairs needed in the electrical system? ☐ Yes ☒ No If "yes", please explain. _____

ROOF, GUTTERS AND DOWNSPOUTS

- (a) What is the approximate age of the roof? 8-10 Years. Documented? ☐ Yes ☒ No
 (b) Has the roof ever leaked during your ownership? ☐ Yes ☒ No If "yes" please explain. _____
 (c) Has the roof been repaired, recovered or any portion of it replaced or recovered during your ownership? ☐ Yes ☒ No If "yes", please explain. _____
 (d) Are you aware of any problems with the roof, gutters or downspouts? ☐ Yes ☒ No If "yes", please explain. _____

CONSTRUCTION

- (a) Are you aware of any problems with the footing, foundation walls, sub-floor, interior and exterior walls, roof construction, decks/porches or other load bearing components? ☐ Yes ☒ No If "yes" please describe in detail. _____
 (b) Are you aware of any repairs to any of the building elements listed in (a) above? ☐ Yes ☒ No If "yes", please describe the location, extent, date and name of the person/company who did the repair or control effort. _____
 (c) Are you aware that any of the work in (b) above was completed without required permits? ☐ Yes ☒ No
 (d) List all significant additions, modifications, renovations, & alterations to the property during your ownership: Master bath, upgraded heat & AC units Fence, updated
 (e) Were required permits obtained for the work in (d) above? ☒ Yes ☐ No

HARDBOARD SIDING

- (a) Are you aware of any hardboard siding on your property? ☐ Yes ☒ No If "yes", which type? _____
 (b) Are you aware of any claims made against the manufacturer for defects in the siding? ☐ Yes ☒ No Date(s) _____
 (c) Was any money received for the claim? ☐ Yes ☒ No Date(s) _____
 (d) Are you aware of any repairs or replacements made to hardboard siding? ☐ Yes ☒ No Date(s) _____
 (e) Please explain any "yes" answers you gave in this section and give dates. _____

BASEMENT AND CRAWL SPACE (Complete only if applicable)

- (a) ☒ Sump pit ☐ Sump pit and pump
 (b) Are you aware of any dampness, water accumulation or leakage, in the basement or crawl space? ☐ Yes ☒ No If "yes", please describe in detail. _____
 (c) Are you aware of any repairs or other attempts to control any water or dampness problem in the basement or crawl space? ☐ Yes ☒ No If "yes", please describe the location, extent, date and name of the person/company who did the repair or control effort. _____

PESTS OR TERMITES/WOOD DESTROYING INSECTS

- (a) Are you aware of any pests or termites/wood destroying insects adversely impacting the property and improvements? ☐ Yes ☒ No
 (b) Are you aware of any uncorrected damage to the property caused by pests or termites/wood destroying insects? ☐ Yes ☒ No
 (c) Is your property currently under a warranty contract by a licensed pest/termite control company? ☐ Yes ☒ No
 (d) Are you aware of any pest/termite control reports for the property? ☐ Yes ☒ No
 (e) Are you aware of any pest/termite control treatments to the property? ☐ Yes ☒ No
 (f) Please explain any "yes" answers you gave in this section: _____

SOIL AND DRAINAGE

- (a) Are you aware of any fill, expansive soil or sinkholes on the property or that may affect the property? ☐ Yes ☒ No
- (b) Are you aware of any soil, earth movement, flood, drainage or grading problems on the property or that may affect the property? ☐ Yes ☒ No
- (c) Are you aware of any past, present or proposed mining, strip-mining, or any other excavations on the property or that may affect the property? ☐ Yes ☒ No
- (d) Please explain any "yes" answers you gave in this section. _____

HAZARDOUS SUBSTANCES/OTHER ENVIRONMENTAL CONCERNS

- (a) Lead: (Note: Production of lead based paint was banned in 1978. See Disclosure of Information and Acknowledgement Lead Based Paint and/or Lead-Based Paint Hazards, form #2049.)
- (1) Are you aware of the presence of any lead hazards (such as paint, water supply lines, etc.) on the property? ☐ Yes ☒ No
- (2) Are you aware if it has ever been covered or removed? ☐ Yes ☒ No
- (3) Are you aware if the property has been tested for lead? ☐ Yes ☒ No If "yes", please give date performed, type of test and test results. _____
- (4) Please explain any "yes" answers you gave in this section. was not tested at purchase since at time house was covered and repaired
- (b) Asbestos Materials
- (1) Are you aware of the presence of asbestos materials on the property, such as roof shingles, siding, insulation, ceiling, flooring, pipe wrap, etc.? ☐ Yes ☒ No
- (2) Are you aware of any asbestos material that has been encapsulated or removed? ☐ Yes ☒ No
- (3) Are you aware if the property has been tested for the presence of asbestos? ☐ Yes ☒ No If "yes", please give date performed, type of test and test results: _____
- (4) Please explain any "yes" answers you gave in this section. _____
- (c) Mold
- (1) Are you aware of the presence of any mold on the property? ☐ Yes ☒ No
- (2) Are you aware of anything with mold on the property that has ever been covered or removed? ☐ Yes ☒ No
- (3) Are you aware if the property has ever been tested for the presence of mold? ☐ Yes ☒ No If "yes", please give date performed, type of test and test results: _____
- (4) Please explain any "yes" answers you gave in this section. _____
- (d) Radon
- (1) Are you aware if the property has been tested for radon gas? ☒ Yes ☐ No If "yes", please give date performed, type of test and test results. 2010 - test was negative (can provide results upon request)
- (2) Are you aware if the property has ever been mitigated for radon gas? ☐ Yes ☒ No If "yes", please provide the date and name of the person/company who did the mitigation. _____
- (e) Methamphetamine
- Are you aware if the property is or was used as a lab, production or storage site for methamphetamine or was the residence of a person convicted of crimes related to methamphetamine? ☐ Yes ☒ No If "yes", please explain. _____
- (f) Other Environmental Concerns
- Are you aware of any other environmental concerns that may affect the property such as polychlorinated biphenyls (PCB's), electromagnetic fields (EMF's), underground fuel tanks, unused septic or storage tanks, etc.? ☐ Yes ☒ No If "yes", please explain. _____

INSURANCE

Are you aware of any claims that have been filed for damages to the property? ☐ Yes ☒ No If "yes", please provide the following information: date of claim, description of claim, repairs and/or replacements completed. _____

MISCELLANEOUS

- (a) The approximate age of the residence is 40 years. The Seller has occupied the property 2 years.
- (b) Has the property been continuously occupied during the last twelve months? ☒ Yes ☐ No If "no", please explain. _____
- (c) Is the property located in an area that requires an occupancy (code compliance) inspection? ☐ Yes ☒ No If "yes", please explain. _____
- (d) Are you aware if this property is located in an area that requires any specific disclosure(s) from the city or county? ☐ Yes ☒ No If "yes", please explain. _____
- (e) Is the property designated as a historical home or located in a historic district? ☐ Yes ☒ No If "yes", please explain. _____
- (f) Is property tax abated? ☐ Yes ☒ No Expiration date _____ Attach documentation from taxing authority.
- (g) Is any portion of the property located within the 100 year flood hazard area (flood plain)? ☐ Yes ☒ No
- (h) Do you have a survey of the property? ☒ Yes ☐ No Does it include all existing improvements on the property? ☐ Yes ☒ No Fence
- (i) Are you aware of any pets having been kept in or on the property? ☐ Yes ☒ No If "yes" please explain. _____
- (j) Is the Buyer being offered a protection plan/home warranty at closing at Seller's expense? ☐ Yes ☒ No
- (k) Are you aware of any inoperable windows or doors, broken thermal seals, or cracked/broken glass? ☐ Yes ☒ No
- (l) Are you aware if carpet has been laid over a damaged wood floor? ☐ Yes ☒ No
- (m) Are you aware of any:
- Shared or common features with adjoining properties? ☐ Yes ☒ No
 - Rights of way, unrecorded easements, or encroachments, which affect the property? ☐ Yes ☒ No
 - Existing or threatened legal action affecting the property? ☐ Yes ☒ No
 - Violations of local, state, or federal laws/regulations, including zoning, relating to the property? ☐ Yes ☒ No
 - Consent required of anyone other than the signer(s) of this form to convey title to the property? ☐ Yes ☒ No
- (n) Please explain any "yes" answers you gave for (g), (h), (i), (k), (l), or (m) above. _____

Additional comments:

updated master bath & closet, added fence to backyard,
upgraded heat & air unit

Exclusions: Fridge, Playset out back chandelier in girl's room
curtain rods in girl's room & in nursery.

Seller attaches the following document(s): _____

SELLER'S ACKNOWLEDGEMENT:

Seller acknowledges that he has carefully examined this statement and that it is complete and accurate to the best of Seller's knowledge. Seller agrees to immediately notify listing broker in writing of any changes in the property condition. Seller authorizes all brokers and their licensees to furnish a copy of this statement to prospective Buyers.

A. Lester 7-22-12
 SELLER SIGNATURE DATE

Amanda Lester
 Seller Printed Name

[Signature] 7-22-12
 SELLER SIGNATURE DATE

Justin Lester
 Seller Printed Name

BUYER'S ACKNOWLEDGEMENT:

Buyer acknowledges having received and read this Seller's Disclosure Statement. Buyer understands that the information in this Seller's Disclosure Statement is limited to information of which Seller has actual knowledge. Buyer should verify the information contained in this Seller's Disclosure Statement, and any other important information provided by either Seller or broker (including any information obtained through the Multiple Listing Service) by an independent, professional investigation of his own. Buyer acknowledges that broker is not an expert at detecting or repairing physical defects in property.

[Signature] 8/8/12
 BUYER SIGNATURE DATE

FURQAN F. RANA
 Buyer Printed Name

[Signature] 8-8-12
 BUYER SIGNATURE DATE

FARHEEN RANA
 Buyer Printed Name



west boundary
of fence

RECEIVED
OCT 02 2012
PLANNING DEPT.

our
fence

neighbor's
fence

another
neighbor's fence
down the street





Neighbor's fence



Junction of our fence + neighbor's fence

#25646

GALLAGHER (50' W.) ROAD





city of CREVE COEUR

300 North New Ballas Road • Creve Coeur, Missouri 63141
(314) 432-6000 • Fax (314) 872-2539 • Relay MO 1-800-735-2966
www.creve-coeur.org

STAFF MEMORANDUM TO THE PLANNING AND ZONING COMMISSION

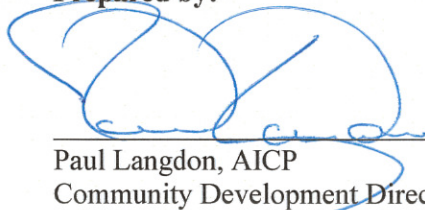
Meeting Date: November 5, 2012

Subject: Zoning Code Conversion from 1987 Standard Industrial Classification (SIC) to 2002 North American Industrial Classification System (NAICS)

Location: City-wide

Requested Action: Work session discussion only.

Prepared by:


Paul Langdon, AICP
Community Development Director

11/1/2012
Date

Attachment: Key to table highlight colors

Introduction

The SIC to NAICS zoning code revisions were discussed at the July 2, 2012 commission work session. The commission requested to review the code changes in segments. The attached table outlines the revision to the zoning code regulations pertaining to the limited use districts: "HE" Higher Education; "PH" Planned Hospital; "PO" Planned Office; and "RO" Research Office.

The commission should note that a 2012 update of the NAICS is currently available and once the changes from the SIC to the 2002 NAICS codes are acceptable, an update to the 2012 NAICS codes is more easily done.

Major Changes

a. Transferable updates

In general, permitted and conditional uses that are currently in the municipal code were updated to reflect the new 2002 NAICS classification code numbers. These updates are shown as P for permitted use, or C for conditional use. NAICS codes were also given to uses that were explicitly not permitted; these changes are highlighted in red and noted by "NO." While the structure of the code does not require listing of not-permitted uses (anything not included is not permitted), staff wanted it to be clear to the Commission where undesirable uses were falling under new codes and would still being excluded unless directed otherwise.

b. *Assignment of number codes to existing permitted and conditional uses expressed in language form*

Changes made to permitted and conditional uses that were originally denoted in language form in the zoning district regulations were updated by assigning the appropriate NAICS code to those uses; these changes are highlighted in yellow.

c. *New industry classification codes with additional conditional and permitted uses*
The 2002 NAICS codes include new industries and provides unique numbers to industries that were previously classified under a broader SIC code.

These updates are shown as a P for permitted use or C for conditional use under their respective district and are highlighted in green.

d. *Uses requiring special consideration*

A small number of uses (banking and used auto sales) are currently permitted subject to specific caveats that do not translate into any industry category. Due to space limitations in the table, the caveats are not written out but staff wanted the Commission to be alerted to those issues and have highlighted them in purple.

e. *Changes in permitted and conditional uses*

A small number of previously permitted and conditional uses are proposed for elimination and these changes are denoted with an X and are also highlighted in red.

Recommended Action

The Commission is asked to review this portion of the overall update and provide comments as necessary. Following completion of the limited use districts, staff will return to the Commission at a future meeting with "MX" Mixed Use and "PC" Planned Community zoning districts for similar consideration. Once the concerns have been adequately addressed for all of the zoning districts, a public hearing will be scheduled and a formal amendment to the Zoning Code will be pursued.

Key to Use Table Highlighting	
Color	Change
Green	Denotes the addition of a new Permitted (P) or Conditional (C) use that was not previously allowed or that was split from a SIC code.
Yellow	Denotes the assignment of a NAICS number to an existing use that does not have an SIC number
Purple	Denotes an existing use that includes special conditions or limitations
Red NO	Denotes a previous use that was explicitly not allowed and will continue as such
Red X	Denotes a previous permitted or conditional use that was changed to not permitted

Higher Education

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	HE
1629	Heavy Construction, NEC (Industrial nonbuilding structures [except petrochemical plants and petroleum refineries])	236210	Industrial Building Construction	
1629	Heavy Construction NEC (irrigation systems, sewage treatment plants, and water treatment plants)	237110	Water and Sewer Line and Related Structures Construction	
1629	Heavy Construction, NEC (petrochemical plants and refineries)	237120	Oil and Gas Pipeline and Related Structures Construction	
1629	Heavy Construction, NEC (power generation plants [except hydroelectric dams], transmission stations, and distribution stations)	237130	Power and Communication Line and Related Structures Construction (Communication Towers Only)	C
1629	Heavy Construction, NEC (except industrial nonbuilding structures, irrigation systems, sewage and water treatment plants, petrochemical plants and refineries, power generation plants [except hydroelectric dams] transmission and distribution stations, right-of-way clearing, line slashing, blasting, and trenching)	237990	Other Heavy and Civil Engineering Construction (Office Only)	
1629	Heavy Construction, NEC (right-of-way clearing and line slashing, blasting, and trenching)	238910	Site Preparation Contractors(Office Only)	
4812	Radiotelephone Communications (paging carriers)	517211	Paging	
4812	Radiotelephone Communications (cellular carriers)	517212	Cellular and Other Wireless Telecommunications	C
4812	Radiotelephone Communications (paging and cellular resellers)	517310	Telecommunications Resellers	
5962	Automatic Merchandise Machine Operators	454210	Vending Machine Operators	
5963	Direct Selling Establishments (except mobile food services and food wagons)	454390	Other Direct Selling Establishments	
5963	Direct Selling Establishments (mobile food services and food wagons)	722330	Mobile Food Services	C
7041	Organization Hotels and Lodging Houses, on Membership Basis (hotels)	721110	Hotels (except Casino Hotels) and Motels	C
7041	Organization Hotels and Lodging Houses, on Membership Basis (except hotels)	721310	Rooming and Boarding Houses	C
8111	Legal Services	541110	Offices of Lawyers	
8211	Elementary and Secondary Schools	611110	Elementary and Secondary Schools	P
8221	Colleges, Universities, and Professional Schools	611310	Colleges, Universities, and Professional Schools	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	HE
8222	Junior Colleges and Technical Institutes	611210	Junior Colleges	P
8231	Libraries	519120	Libraries and Archives	P
8243	Data Processing Schools (except computer repair training)	611420	Computer Training	
8243	Data Processing Schools (computer repair training)	611519	Other Technical and Trade Schools	
8244	Business and Secretarial Schools	611410	Business and Secretarial Schools	
8249	Vocational Schools, NEC (aviation schools, excluding flying instruction)	611512	Flight Training	
8249	Vocational Schools, NEC (vocational apprenticeship training)	611513	Apprenticeship Training	
8249	Vocational Schools, NEC (except aviation and flight training and apprenticeship training)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (professional and management development training)	611430	Professional and Management Development Training	
8299	Schools and Educational Services, NEC (flying instruction)	611512	Flight Training	
8299	Schools and Educational Services, NEC (cooking and modeling schools)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (art, drama, and music schools)	611610	Fine Arts Schools	C
8299	Schools and Educational Services, NEC (baton instruction)	611620	Sports and Recreation Instruction	
8299	Schools and Educational Services, NEC (language schools)	611630	Language Schools	
8299	Schools and Educational Services, NEC (exam preparation and tutoring)	611691	Exam Preparation and Tutoring	P
8299	Schools and Educational Services, NEC (automobile driving instruction)	611692	Automobile Driving Schools	
8299	Schools and Educational Services, NEC (except professional and management training, aviation and flight training, fine arts schools, language schools, exam preparation and tutoring, automobile driving schools, and educational support services)	611699	All Other Miscellaneous Schools and Instruction	
8299	Schools and Educational Services NEC (educational support services)	611710	Educational Support Services	P
8322	Individual and Family Social Services (child and youth services)	624110	Child and Youth Services	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	HE
8322	Individual and Family Social Services (services for the elderly and disabled)	624120	Services for the Elderly and Persons with Disabilities	C
8322	Individual and Family Social Services (except services for children, youth, elderly, and disabled; community food assistance services; housing services (except temporary), emergency and relief services, and government parole or probation offices)	624190	Other Individual and Family Services	
8322	Individual and Family Social Services (community food assistance services)	624210	Community Food Services	
8322	Individual and Family Social Services (temporary shelter)	624221	Temporary Shelters	
8322	Individual and Family Social Services (housing services except temporary shelter)	624229	Other Community Housing Services	
8322	Individual and Family Social Services (emergency and relief services)	624230	Emergency and Other Relief Services	
8322	Individual and Family Social Services (government parole and probation offices)	922150	Parole Offices and Probation Offices	
8331	Job Training and Vocational Rehabilitation Services	624310	Vocational Rehabilitation Services	
8351	Child Day Care Services	624410	Child Day Care Services	C
8361	Residential Care (homes for the mentally handicapped with incidental health care)	623210	Residential Mental Retardation Facilities	
8361	Residential Care (mental health and substance abuse facilities)	623220	Residential Mental Health and Substance Abuse Facilities	C
8361	Residential Care (homes for the elderly)	623312	Homes for the Elderly	C
8361	Residential Care (except mental health and substance abuse facilities, homes for the elderly, and homes for the mentally handicapped with incidental health care)	623990	Other Residential Care Facilities	C
8399	Social Services, NEC (voluntary health organizations)	813212	Voluntary Health Organizations	
8399	Social Services, NEC (grantmaking and giving)	813219	Other Grantmaking and Giving Services	
8399	Social Services, NEC (human rights organizations)	813311	Human Rights Organizations	
8399	Social Services, NEC (environment, conservation, and wildlife advocacy)	813312	Environment, Conservation and Wildlife Organizations	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	HE
8399	Social Services, NEC (except human rights, environment, conservation and wildlife advocacy organizations, grantmaking and giving, and voluntary health organizations)	813319	Other Social Advocacy Organizations	
8412	Museums and Art Galleries (except historic and heritage sites)	712110	Museums	
8412	Museums and Art Galleries (historic and heritage sites)	712120	Historical Sites	C
8422	Arboreta and Botanical or Zoological Gardens (except nature parks and reserves)	712130	Zoos and Botanical Gardens	
8422	Arboreta and Botanical or Zoological Gardens (nature parks and reserves)	712190	Nature Parks and Other Similar Institutions	C
8611	Business Associations	813910	Business Associations	
8621	Professional Membership Organizations	813920	Professional Organizations	
8631	Labor Unions and Similar Labor Organizations	813930	Labor Unions and Similar Labor Organizations	
8641	Civic, Social, and Fraternal Associations (taxpayers' associations, tenants' advocacy associations, temperance organizations)	813319	Other Social Advocacy Organizations	
8641	Civic, Social, and Fraternal Associations (except condominium and homeowner associations, taxpayers associations, tenants advocacy associations, temperance organizations, and Indian and Alaska Native Tribal Councils)	813410	Civic and Social Organizations	
8641	Civic, Social, and Fraternal Associations (condominium and homeowner associations)	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	
8641	Civic, Social, and Fraternal Associations (Indian and Alaska Native Tribal Councils)	921150	American Indian and Alaska Native Tribal Governments	
8651	Political Organizations	813940	Political Organizations	
8661	Religious Organizations	813110	Religious Organizations	P
8811	Private Households	814110	Private Households	P
8999	Services, NEC (record production)	512210	Record Production	
8999	Services, NEC (music publishing)	512230	Music Publishers	
8999	Services, NEC (Internet broadcasting, special interest web sites, entertainment sites, and interactive game sites)	516110	Internet Publishing and Broadcasting	
8999	Services, NEC (Internet web search portals)	518112	Web Search Portals	
8999	Services, NEC (actuarial consulting)	541612	Human Resources and Executive Search Consulting Services	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	HE
8999	Services, NEC (environmental consultants)	541620	Environmental Consulting Services	
8999	Services, NEC (scientific and related consulting services)	541690	Other Scientific and Technical Consulting Services	
8999	Services, NEC (weather forecasting services)	541990	All Other Professional, Scientific, and Technical Services	
8999	Services, NEC (authors, artists, and related technical services, independent)	711510	Independent Artists, Writers, and Performers	
9111	Executive Offices	921110	Executive Offices	
9121	Legislative Bodies	921120	Legislative Bodies	
9131	Executive and Legislative Office Combined	921140	Executive and Legislative Offices, Combined	
9199	General Government, NEC	921190	Other General Government Support	
9211	Courts	922110	Courts	
9221	Police Protection	922120	Police Protection	P
9222	Legal Counsel and Prosecution	922130	Legal Counsel and Prosecution	
9223	Correctional Institutions	922140	Correctional Institutions	
9224	Fire Protection	922160	Fire Protection	P
9229	Public Order and Safety, NEC	922190	All Other Justice, Public Order, and Safety Activities	

Planned Hospital

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
1629	Heavy Construction, NEC (Industrial nonbuilding structures [except petrochemical plants and petroleum refineries])	236210	Industrial Building Construction	
1629	Heavy Construction NEC (irrigation systems, sewage treatment plants, and water treatment plants)	237110	Water and Sewer Line and Related Structures Construction	
1629	Heavy Construction, NEC (petrochemical plants and refineries)	237120	Oil and Gas Pipeline and Related Structures Construction	
1629	Heavy Construction, NEC (power generation plants [except hydroelectric dams], transmission stations, and distribution stations)	237130	Power and Communication Line and Related Structures Construction (Communication Towers Only)	C
1629	Heavy Construction, NEC (except industrial nonbuilding structures, irrigation systems, sewage and water treatment plants, petrochemical plants and refineries, power generation plants [except hydroelectric dams] transmission and distribution stations, right-of-way clearing, line slashing, blasting, and trenching)	237990	Other Heavy and Civil Engineering Construction (Office Only)	
1629	Heavy Construction, NEC (right-of-way clearing and line slashing, blasting, and trenching)	238910	Site Preparation Contractors(Office Only)	
1711	Plumbing, Heating, and Air-Conditioning (environmental control installation contractors)	238210	Electrical Contractors(Office Only)	
1711	Plumbing, Heating, and Air-Conditioning (except environmental controls installation; and septic tank, cesspool, and dry well construction)	238220	Plumbing, Heating, and Air-Conditioning Contractors(Office Only)	
1711	Plumbing, Heating, and Air-Conditioning (septic tank, cesspool, and dry well construction contractors)	238910	Site Preparation Contractors(Office Only)	
1721	Painting and Paper Hanging (traffic lane painting)	237310	Highway, Street, and Bridge Construction(Office Only)	
1721	Painting and Paper Hanging	238320	Paint and Wall Covering Contractors(Office Only)	
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (incontinent pads and bed pads)	322291	Sanitary Paper Product Manufacturing	
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (electronic hearing aids)	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	C

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (except electronic hearing aids, incontinent pads, anatomical models, and bed pads)	339113	Surgical Appliance and Supplies Manufacturing	
3842	Orthopedic, Prosthetic, and Surgical Appliances and Supplies (anatomical models)	339999	All Other Miscellaneous Manufacturing	
3843	Dental Equipment and Supplies	339114	Dental Equipment and Supplies Manufacturing	C
3844	X-Ray Apparatus and Tubes and Related Irradiation Apparatus	334517	Irradiation Apparatus Manufacturing	C
3845	Electromedical and Electrotherapeutic Apparatus (except CT and CAT scanners)	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	C
3845	Electromedical and Electrotherapeutic Apparatus (CT and CAT Scanners)	334517	Irradiation Apparatus Manufacturing	C
3851	Ophthalmic Goods (intraocular lenses, i.e., surgical implants)	339113	Surgical Appliance and Supplies Manufacturing	C
3851	Ophthalmic Goods (except intraocular lenses)	339115	Ophthalmic Goods Manufacturing	C
4812	Radiotelephone Communications (paging carriers)	517211	Paging	
4812	Radiotelephone Communications (cellular carriers)	517212	Cellular and Other Wireless Telecommunications	C
4812	Radiotelephone Communications (paging and cellular resellers)	517310	Telecommunications Resellers	
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (merchant wholesalers except those selling drugs and sundries via retail method)	424210	Drugs and Druggists' Sundries Merchant Wholesalers	
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (business to business electronic markets)	425110	Business to Business Electronic Markets	
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (agents and brokers)	425120	Wholesale Trade Agents and Brokers	
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (drugs and sundries sold via retail method)	446110	Pharmacies and Drug Stores	P
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (cosmetics sold via retail method)	446120	Cosmetics, Beauty Supplies, and Perfume Stores	
5122	Drugs, Drug Proprietaries, and Druggists' Sundries (vitamins sold via retail method)	446191	Food (Health) Supplement Stores	P
5963	Direct Selling Establishments (except mobile food services and food wagons)	454390	Other Direct Selling Establishments	
5963	Direct Selling Establishments (mobile food services and food wagons)	722330	Mobile Food Services	C
5983	Fuel Oil Dealers	454311	Heating Oil Dealers	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
5984	Liquefied Petroleum Gas (Bottled Gas) Dealers	454312	Liquefied Petroleum Gas (Bottled Gas) Dealers	
5989	Fuel Dealers, NEC	454319	Other Fuel Dealers	
5992	Florists	453110	Florists	P
6011	Federal Reserve Banks	521110	Monetary Authorities - Central Bank	
6019	Central Reserve Depository Institutions, NEC	522298	All Other Nondepository Credit Intermediation	
6021	National Commercial Banks (banking)	522110	Commercial Banking	P
6021	National Commercial Banks (credit card issuing)	522210	Credit Card Issuing	P
6022	State Commercial Banks (commercial banking)	522110	Commercial Banking	P
6022	State Commercial Banks (private and industrial banking)	522190	Other Depository Credit Intermediation	
6022	State Commercial Banks (credit card issuing)	522210	Credit Card Issuing	P
6029	Commercial Banks, NEC	522110	Commercial Banking	
6035	Savings Institutions, Federally Chartered	522120	Savings Institutions	
6036	Savings Institutions, Not Federally Chartered	522120	Savings Institutions	
6061	Credit Unions, Federally Chartered	522130	Credit Unions	P
6062	Credit Unions, Not Federally Chartered	522130	Credit Unions	P
8011	Offices and Clinics of Doctors of Medicine (except mental health specialists, HMO medical centers, and ambulatory surgical and emergency centers)	621111	Offices of Physicians (except Mental Health Specialists)	P
8011	Offices and Clinics of Doctors of Medicine (mental health specialists)	621112	Offices of Physicians, Mental Health Specialists	P
8011	Offices and Clinics of Doctors of Medicine (HMO Medical Centers)	621491	HMO Medical Centers	P
8011	Offices and Clinics of Doctors of Medicine (ambulatory surgical and emergency centers)	621493	Freestanding Ambulatory Surgical and Emergency Centers	P
8021	Offices and Clinics of Dentists	621210	Offices of Dentists	P
8031	Offices and Clinics of Doctors of Osteopathy (except mental health specialists)	621111	Offices of Physicians (except Mental Health Specialists)	P
8031	Offices and Clinics of Doctors of Osteopathy (mental health specialists)	621112	Offices of Physicians, Mental Health Specialists	P
8041	Offices and Clinics of Chiropractors	621310	Offices of Chiropractors	P
8042	Offices and Clinics of Optometrists	621320	Offices of Optometrists	P
8043	Offices and Clinics of Podiatrists	621391	Offices of Podiatrists	P
8049	Offices and Clinics of Health Practitioners, NEC (mental health practitioners except physicians)	621330	Offices of Mental Health Practitioners (except Physicians)	P
8049	Offices and Clinics of Health Practitioners, NEC (physical, occupational, recreational and speech therapists, and audiologists)	621340	Offices of Physical, Occupational Speech Therapists, and Audiologists	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
8049	Offices and Clinics of Health Practitioners, NEC (except mental health practitioners, physical, occupational, speech therapists, and audiologists)	621399	Offices of All Other Miscellaneous Health Practitioners	P
8051	Skilled Nursing Care Facilities (except continuing care retirement communities and mental retardation hospitals)	623110	Nursing Care Facilities	C
8051	Skilled Nursing Care Facilities (mental retardation hospitals)	623210	Residential Mental Retardation Facilities	C
8051	Skilled Nursing Care Facilities (continuing care retirement communities)	623311	Continuing Care Retirement Communities	C
8052	Intermediate Care Facilities (except continuing care retirement communities and mental retardation facilities)	623110	Nursing Care Facilities	C
8052	Intermediate Care Facilities (mental retardation facilities)	623210	Residential Mental Retardation Facilities	C
8052	Intermediate Care Facilities (continuing care retirement communities)	623311	Continuing Care Retirement Communities	C
8059	Nursing and Personal Care Facilities, NEC (except continuing care retirement communities, psychiatric convalescent homes with health care, and homes for the mentally retarded with health care)	623110	Nursing Care Facilities	C
8059	Nursing and Personal Care Facilities, NEC (homes for the mentally retarded with health care)	623210	Residential Mental Retardation Facilities	C
8059	Nursing and Personal Care Facilities, NEC (continuing care retirement communities)	623311	Continuing Care Retirement Communities	C
8062	General Medical and Surgical Hospitals	622110	General Medical and Surgical Hospitals	P
8063	Psychiatric Hospitals	622210	Psychiatric and Substance Abuse Hospitals	P
8069	Specialty Hospitals, Except Psychiatric (children's hospitals)	622110	General Medical and Surgical Hospitals	P
8069	Specialty Hospitals, Except Psychiatric (substance abuse hospitals)	622210	Psychiatric and Substance Abuse Hospitals	P
8069	Specialty Hospitals, Except Psychiatric (except children's and substance abuse hospitals)	622310	Specialty (except Psychiatric and Substance Abuse) Hospitals	P
8071	Medical Laboratories (except diagnostic imaging centers)	621511	Medical Laboratories	P
8071	Medical Laboratories (diagnostic imaging centers)	621512	Diagnostic Imaging Centers	P
8072	Dental Laboratories	339116	Dental Laboratories	P
8082	Home Health Care Services	621610	Home Health Care Services	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
8092	Kidney Dialysis Centers	621492	Kidney Dialysis Centers	P
8093	Specialty Outpatient Facilities, NEC (respiratory therapy clinics and offices)	621399	Offices of All Other Miscellaneous Health Practitioners	P
8093	Specialty Outpatient Facilities, NEC (family planning centers)	621410	Family Planning Centers	P
8093	Specialty Outpatient Facilities, NEC (mental health facilities)	621420	Outpatient Mental Health and Substance Abuse Centers	P
8093	Specialty Outpatient Facilities, NEC (except family planning centers, mental health centers, and respiratory therapy clinics and offices)	621498	All Other Outpatient Care Centers	P
8099	Health and Allied Services, NEC (medical artists)	541430	Graphic Design Services	P
8099	Health and Allied Services, NEC (medical photography)	541922	Commercial Photography	P
8099	Health and Allied Services, NEC (childbirth preparation)	621410	Family Planning Centers	P
8099	Health and Allied Services, NEC (blood and organ banks)	621991	Blood and Organ Banks	P
8099	Health and Allied Services, NEC (except blood and organ banks, medical artists, medical photography, and childbirth preparation classes)	621999	All Other Miscellaneous Ambulatory Health Care Services	P
8111	Legal Services	541110	Offices of Lawyers	
8211	Elementary and Secondary Schools	611110	Elementary and Secondary Schools	
8221	Colleges, Universities, and Professional Schools	611310	Colleges, Universities, and Professional Schools	P
8222	Junior Colleges and Technical Institutes	611210	Junior Colleges	
8231	Libraries	519120	Libraries and Archives	
8322	Individual and Family Social Services (child and youth services)	624110	Child and Youth Services	P
8322	Individual and Family Social Services (services for the elderly and disabled)	624120	Services for the Elderly and Persons with Disabilities	P
8322	Individual and Family Social Services (except services for children, youth, elderly, and disabled; community food assistance services; housing services (except temporary), emergency and relief services, and government parole or probation offices)	624190	Other Individual and Family Services	C
8322	Individual and Family Social Services (community food assistance services)	624210	Community Food Services	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
8322	Individual and Family Social Services (temporary shelter)	624221	Temporary Shelters	
8322	Individual and Family Social Services (housing services except temporary shelter)	624229	Other Community Housing Services	
8322	Individual and Family Social Services (emergency and relief services)	624230	Emergency and Other Relief Services	
8322	Individual and Family Social Services (government parole and probation offices)	922150	Parole Offices and Probation Offices	
8331	Job Training and Vocational Rehabilitation Services	624310	Vocational Rehabilitation Services	
8351	Child Day Care Services	624410	Child Day Care Services	C
8361	Residential Care (homes for the mentally handicapped with incidental health care)	623210	Residential Mental Retardation Facilities	
8361	Residential Care (mental health and substance abuse facilities)	623220	Residential Mental Health and Substance Abuse Facilities	P
8361	Residential Care (homes for the elderly)	623312	Homes for the Elderly	
8361	Residential Care (except mental health and substance abuse facilities, homes for the elderly, and homes for the mentally handicapped with incidental health care)	623990	Other Residential Care Facilities	C
8399	Social Services, NEC (voluntary health organizations)	813212	Voluntary Health Organizations	
8399	Social Services, NEC (grantmaking and giving)	813219	Other Grantmaking and Giving Services	
8399	Social Services, NEC (human rights organizations)	813311	Human Rights Organizations	
8399	Social Services, NEC (environment, conservation, and wildlife advocacy)	813312	Environment, Conservation and Wildlife Organizations	
8399	Social Services, NEC (except human rights, environment, conservation and wildlife advocacy organizations, grantmaking and giving, and voluntary health organizations)	813319	Other Social Advocacy Organizations	
8412	Museums and Art Galleries (except historic and heritage sites)	712110	Museums	
8412	Museums and Art Galleries (historic and heritage sites)	712120	Historical Sites	C
8651	Political Organizations	813940	Political Organizations	
8661	Religious Organizations	813110	Religious Organizations	P
9221	Police Protection	922120	Police Protection	P
9222	Legal Counsel and Prosecution	922130	Legal Counsel and Prosecution	
9223	Correctional Institutions	922140	Correctional Institutions	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PH
9224	Fire Protection	922160	Fire Protection	X
9229	Public Order and Safety, NEC	922190	All Other Justice, Public Order, and Safety Activities	C
9311	Public Finance, Taxation, and Monetary Policy	921130	Public Finance Activities	
9411	Administration of Educational Programs	923110	Administration of Education Programs	P
9431	Administration of Public Health Programs	923120	Administration of Public Health Programs	P
9441	Administration of Social, Human Resource and Income Maintenance Programs	923130	Administration of Human Resource Programs (except Education, Public Health, and Veteran's Affairs Programs)	P
9451	Administration of Veterans' Affairs, Except Health and Insurance	923140	Administration of Veteran's Affairs	P

Planned Office

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
1629	Heavy Construction, NEC (Industrial nonbuilding structures [except petrochemical plants and petroleum refineries])	236210	Industrial Building Construction	
1629	Heavy Construction NEC (irrigation systems, sewage treatment plants, and water treatment plants)	237110	Water and Sewer Line and Related Structures Construction	
1629	Heavy Construction, NEC (petrochemical plants and refineries)	237120	Oil and Gas Pipeline and Related Structures Construction	
1629	Heavy Construction, NEC (power generation plants [except hydroelectric dams], transmission stations, and distribution stations)	237130	Power and Communication Line and Related Structures Construction (Communication Towers Only)	C
1629	Heavy Construction, NEC (except industrial nonbuilding structures, irrigation systems, sewage and water treatment plants, petrochemical plants and refineries, power generation plants [except hydroelectric dams] transmission and distribution stations, right-of-way clearing, line slashing, blasting, and trenching)	237990	Other Heavy and Civil Engineering Construction (Office Only)	
1629	Heavy Construction, NEC (right-of-way clearing and line slashing, blasting, and trenching)	238910	Site Preparation Contractors(Office Only)	
2759	Commercial Printing, NEC (flexographic printing)	323112	Commercial Flexographic Printing	
2759	Commercial Printing, NEC (screen printing)	323113	Commercial Screen Printing	
2759	Commercial Printing, NEC (quick printing)	323114	Quick Printing	P
2759	Commercial Printing, NEC (digital printing, except quick printing)	323115	Digital Printing	P
2759	Commercial Printing, NEC (other commercial printing except flexographic, screen, digital, and quick printing)	323119	Other Commercial Printing	
4311	United States Postal Service	491110	Postal Service	P
4812	Radiotelephone Communications (paging carriers)	517211	Paging	P
4812	Radiotelephone Communications (cellular carriers)	517212	Cellular and Other Wireless Telecommunications	P
4812	Radiotelephone Communications (paging and cellular resellers)	517310	Telecommunications Resellers	P
4813	Telephone Communications, Except Radiotelephone (except resellers)	517110	Wired Telecommunications Carriers	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
4813	Telephone Communications, Except Radiotelephone (resellers)	517310	Telecommunications Resellers	P
4822	Telegraph and Other Message Communications	517110	Wired Telecommunications Carriers	P
4832	Radio Broadcasting Stations (networks)	515111	Radio Networks	P
4832	Radio Broadcasting Stations (except networks)	515112	Radio Stations	P
4833	Television Broadcasting Stations	515120	Television Broadcasting	P
4841	Cable and Other Pay Television Services (cable networks)	515210	Cable and Other Subscription Programming	P
4841	Cable and Other Pay Television Services (except cable and other subscription programming)	517510	Cable and Other Program Distribution	P
5015	Motor Vehicle Parts, Used (merchant wholesalers except those selling via retail method)	423140	Motor Vehicle Parts (Used) Merchant Wholesalers	
5015	Motor Vehicle Parts, Used (business to business electronic markets)	425110	Business to Business Electronic Markets	
5015	Motor Vehicle Parts, Used (agents and brokers)	425120	Wholesale Trade Agents and Brokers	P
5015	Motor Vehicle Parts, Used (used auto parts sold via the retail method)	441310	Automotive Parts and Accessories Stores	
5049	Professional Equipment and Supplies, NEC (merchant wholesalers except those selling religious and teacher's school supplies via retail method)	423490	Other Professional Equipment and Supplies Merchant Wholesalers	
5049	Professional Equipment and Supplies, NEC (business to business electronic markets)	425110	Business to Business Electronic Markets	
5049	Professional Equipment and Supplies, NEC (agents and brokers)	425120	Wholesale Trade Agents and Brokers	
5049	Professional Equipment and Supplies, NEC (religious and teacher's school supplies sold via retail method)	453210	Office Supplies and Stationery Stores	P
5812	Eating Places (dinner theaters)	711110	Theater Companies and Dinner Theaters	C
5812	Eating Places (full-service restaurants)	722110	Full-Service Restaurants	C
5812	Eating Places (limited-service restaurants)	722211	Limited-Service Restaurants	C
5812	Eating Places (cafeterias)	722212	Cafeterias	C
5812	Eating Places (snack and nonalcoholic beverage bars)	722213	Snack and Nonalcoholic Beverage Bars	C
5812	Eating Places (food service contractors)	722310	Food Service Contractors	NO
5812	Eating Places (caterers)	722320	Caterers	NO
5813	Drinking Places (Alcoholic Beverages)	722410	Drinking Places (Alcoholic Beverages)	
5912	Drug Stores and Proprietary Stores	446110	Pharmacies and Drug Stores	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
5921	Liquor Stores	445310	Beer, Wine, and Liquor Stores	
5932	Used Merchandise Stores (except pawn shops)	453310	Used Merchandise Stores (Except Pawnshops)	
5932	Used Merchandise Stores (pawnshops)	522298	All Other Nondepository Credit Intermediation (EXCEPT PAWN SHOPS)	
5963	Direct Selling Establishments (except mobile food services and food wagons)	454390	Other Direct Selling Establishments	
5963	Direct Selling Establishments (mobile food services and food wagons)	722330	Mobile Food Services	C
6011	Federal Reserve Banks	521110	Monetary Authorities - Central Bank	P
6019	Central Reserve Depository Institutions, NEC	522298	All Other Nondepository Credit Intermediation	P
6021	National Commercial Banks (banking)	522110	Commercial Banking	P
6021	National Commercial Banks (credit card issuing)	522210	Credit Card Issuing	P
6022	State Commercial Banks (commercial banking)	522110	Commercial Banking	P
6022	State Commercial Banks (private and industrial banking)	522190	Other Depository Credit Intermediation	P
6022	State Commercial Banks (credit card issuing)	522210	Credit Card Issuing	P
6029	Commercial Banks, NEC	522110	Commercial Banking	P
6035	Savings Institutions, Federally Chartered	522120	Savings Institutions	P
6036	Savings Institutions, Not Federally Chartered	522120	Savings Institutions	P
6061	Credit Unions, Federally Chartered	522130	Credit Unions	P
6062	Credit Unions, Not Federally Chartered	522130	Credit Unions	P
6081	Branches and Agencies of Foreign Banks (branches)	522110	Commercial Banking	P
6081	Branches and Agencies of Foreign Banks (international trade financing)	522293	International Trade Financing	P
6081	Branches and Agencies of Foreign Banks (agencies, except international trade financing)	522298	All Other Nondepository Credit Intermediation	P
6082	Foreign Trade and International Banking Institutions (international trade financing)	522293	International Trade Financing	P
6082	Foreign Trade and International Banking Institutions (except international trade financing)	522298	All Other Nondepository Credit Intermediation	X
6091	Nondeposit Trust Facilities	523991	Trust, Fiduciary, and Custody Activities	P
6099	Functions Related to Depository Banking, NEC (electronic funds transfer networks and clearinghouse associations)	522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
6099	Functions Related to Depository Banking, NEC (except electronic funds transfer networks and clearinghouses, foreign currency exchanges, escrow and fiduciary agencies and deposit brokers)	522390	Other Activities Related to Credit Intermediation	no
6099	Functions Related to Depository Banking, NEC (foreign currency exchange)	523130	Commodity Contracts Dealing	P
6099	Functions Related to Depository Banking, NEC (escrow and fiduciary agencies)	523991	Trust, Fiduciary, and Custody Activities	P
6111	Federal and Federally-Sponsored Credit Agencies (trade banks)	522292	Real Estate Credit	P
6111	Federal and Federally-Sponsored Credit Agencies (trade banks)	522293	International Trade Financing	P
6111	Federal and Federally Sponsored Credit Agencies (secondary market financing)	522294	Secondary Market Financing	P
6111	Federal and Federally-Sponsored Credit Agencies (except trade banks, secondary market financing and Federal Land Banks)	522298	All Other Nondepository Credit Intermediation	X
6141	Personal Credit Institutions (credit card issuing)	522210	Credit Card Issuing	P
6141	Personal Credit Institutions (installment sales finance)	522220	Sales Financing	P
6141	Personal Credit Institutions (except installment sales finance, industrial nondeposit banks, and credit card issuing)	522291	Consumer Lending	P
6141	Personal Credit Institutions (industrial nondeposit banks)	522298	All Other Nondepository Credit Intermediation	P
6153	Short-Term Business Credit Institutions, Except Agricultural (credit card issuing)	522210	Credit Card Issuing	P
6153	Short-Term Business Credit Institutions, Except Agricultural (business sales finance).	522220	Sales Financing	P
6153	Short Term Business Credit Institutions, Except Agricultural (short term inventory credit and purchasing accounts receivable)	522298	All Other Nondepository Credit Intermediation	X
6153	Short-Term Business Credit Institutions, Except Agricultural (credit card service)	522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	P
6153	Short-Term Business Credit Institutions, Except Agricultural (except credit card service and issuing, short term inventory credit, purchasing accounts receivable, and business sales finance)	523910	Miscellaneous Intermediation	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
6159	Miscellaneous Business Credit Institutions (finance leasing combined with sales financing)	522220	Sales Financing	P
6159	Miscellaneous Business Credit Institutions (farm mortgage companies)	522292	Real Estate Credit	P
6159	Miscellaneous Business Credit Institutions (trade banks)	522293	International Trade Financing	P
6159	Miscellaneous Business Credit Institutions (secondary market financing)	522294	Secondary Market Financing	P
6159	Miscellaneous Business Credit Institutions (except trade banks, farm mortgage companies, secondary market financing, and finance leasing combined with sales financing)	522298	All Other Nondepository Credit Intermediation	P
6162	Mortgage Bankers and Loan Correspondents (mortgage bankers and originators)	522292	Real Estate Credit	P
6162	Mortgage Bankers and Loan Correspondents (mortgage servicing)	522390	Other Activities Related to Credit Intermediation	P
6163	Loan Brokers	522310	Mortgage and Nonmortgage Loan Brokers	P
6211	Security Brokers, Dealers, and Flotation Companies (security dealers and underwriters)	523110	Investment Banking and Securities Dealing	P
6211	Security Brokers, Dealers, and Flotation Companies (security brokers, note brokers)	523120	Securities Brokerage	P
6211	Security Brokers, Dealers, and Flotation Companies (except security dealers and underwriters, and security, oil lease, and gas lease brokers)	523910	Miscellaneous Intermediation	P
6211	Security Brokers, Dealers, and Flotation Companies (oil lease and gas lease brokers offices)	523999	Miscellaneous Financial Investment Activities	P
6221	Commodity Contracts Brokers and Dealers (commodity dealers)	523130	Commodity Contracts Dealing	P
6221	Commodity Contracts Brokers and Dealers (commodity brokers)	523140	Commodity Contracts Brokerage	P
6231	Security and Commodity Exchanges	523210	Securities and Commodity Exchanges	P
6282	Investment Advice (portfolio managers)	523920	Portfolio Management	P
6282	Investment Advice (except portfolio managers)	523930	Investment Advice	P
6289	Services Allied With the Exchange of Securities or Commodities, NEC (security custodians)	523991	Trust, Fiduciary, and Custody Activities	P
6289	Services Allied With the Exchange of Securities or Commodities, NEC (except security custodians)	523999	Miscellaneous Financial Investment Activities	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
6311	Life Insurance (life insurers-direct)	524113	Direct Life Insurance Carriers	P
6311	Life Insurance (burial insurance)	524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P
6311	Life Insurance (reinsurers)	524130	Reinsurance Carriers	P
6321	Accident and Health Insurance (disability insurers-direct)	524113	Direct Life Insurance Carriers	P
6321	Accident and Health Insurance (health and medical insurers-direct)	524114	Direct Health and Medical Insurance Carriers	P
6321	Accident and Health Insurance (reinsurers)	524130	Reinsurance Carriers	P
6321	Accident and Health Insurance (self insurers)	525190	Other Insurance Funds	P
6324	Hospital and Medical Service Plans (health and medical insurers-direct)	524114	Direct Health and Medical Insurance Carriers	P
6324	Hospital and Medical Service Plans (reinsurers)	524130	Reinsurance Carriers	P
6324	Hospital and Medical Service Plans (self insurers)	525190	Other Insurance Funds	P
6331	Fire, Marine, and Casualty Insurance (fire, marine, and casualty insurers-direct, except contact lens insurance)	524126	Direct Property and Casualty Insurance Carriers	P
6331	Fire, Marine, and Casualty Insurance (contact lens insurance)	524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P
6331	Fire, Marine, and Casualty Insurance (reinsurers)	524130	Reinsurance Carriers	P
6331	Fire, Marine, and Casualty Insurance (self insurers)	525190	Other Insurance Funds	P
6351	Surety Insurance (financial responsibility insurers-direct)	524126	Direct Property and Casualty Insurance Carriers	P
6351	Surety Insurance (warranty insurance, home)	524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P
6351	Surety Insurance (reinsurers)	524130	Reinsurance Carriers	P
6361	Title Insurance (title insurers-direct)	524127	Direct Title Insurance Carriers	P
6361	Title Insurance (reinsurers)	524130	Reinsurance Carriers	P
6371	Pension, Health, and Welfare Funds (managers)	523920	Portfolio Management	P
6371	Pension, Health, and Welfare Funds (administrators)	524292	Third Party Administration of Insurance and Pension Funds	P
6371	Pension, Health, and Welfare Funds (pension funds)	525110	Pension Funds	P
6371	Pension, Health, and Welfare Funds (health and welfare funds)	525120	Health and Welfare Funds	P
6371	Pension, Health, and Welfare Funds (profit sharing funds)	525990	Other Financial Vehicles	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
6399	Insurance Carriers, NEC	524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	P
6411	Insurance Agents, Brokers, and Service (insurance agents and brokers)	524210	Insurance Agencies and Brokerages	P
6411	Insurance Agents, Brokers, and Service (insurance claims adjusters)	524291	Claims Adjusting	C
6411	Insurance Agents, Brokers, and Service (processors)	524292	Third Party Administration of Insurance and Pension Funds	P
6411	Insurance Agents, Brokers, and Service (except processors, agents and brokers, and claims adjusters)	524298	All Other Insurance Related Activities	P
6512	Operators of Nonresidential Buildings (except stadium and arena owners)	531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	P
6512	Operators of Nonresidential Buildings (stadium and arena owners)	711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	P
6513	Operators of Apartment Buildings	531110	Lessors of Residential Buildings and Dwellings	P
6514	Operators of Dwellings Other Than Apartment Buildings	531110	Lessors of Residential Buildings and Dwellings	P
6515	Operators of Residential Mobile Home Sites	531190	Lessors of Other Real Estate Property	P
6517	Lessors of Railroad Property	531190	Lessors of Other Real Estate Property	P
6519	Lessors of Real Property, NEC	531190	Lessors of Other Real Estate Property	P
6531	Real Estate Agents and Managers (operating housing authorities)	531110	Lessors of Residential Buildings and Dwellings	P
6531	Real Estate Agents and Managers (agents and brokers)	531210	Offices of Real Estate Agents and Brokers	P
6531	Real Estate Agents and Managers (residential property managers)	531311	Residential Property Managers	P
6531	Real Estate Agents and Managers (nonresidential property managers)	531312	Nonresidential Property Managers	P
6531	Real Estate Agents and Managers (appraisers)	531320	Offices of Real Estate Appraisers	P
6531	Real Estate Agents and Managers (except property managers, condominium associations, cemetery management, agents and brokers, operating housing authorities, and appraisers)	531390	Other Activities Related to Real Estate	P
6531	Real Estate Agents and Managers (cemetery management)	812220	Cemeteries and Crematories	X
6531	Real Estate Agents and Managers (condominium associations)	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
6541	Title Abstract Offices	541191	Title Abstract and Settlement Offices	P
6552	Land Subdividers and Developers, Except Cemeteries	237210	Land Subdivision	P
6553	Cemetery Subdividers and Developers	812220	Cemeteries and Crematories	
6712	Offices of Bank Holding Companies	551111	Offices of Bank Holding Companies	P
6719	Offices of Holding Companies, NEC	551112	Offices of Other Holding Companies	P
6722	Management Investment Offices, Open-End	525910	Open-End Investment Funds	P
6726	Unit Investment Trusts, Face-Amount Certificate Offices, and Closed-End Management Investment Offices	525990	Other Financial Vehicles	P
6732	Educational, Religious, and Charitable Trusts	813211	Grantmaking Foundations	P
6733	Trusts, Except Educational, Religious, and Charitable (managers)	523920	Portfolio Management	P
6733	Trusts, Except Educational, Religious, and Charitable (administrators of private estates)	523991	Trust, Fiduciary, and Custody Activities	P
6733	Trusts, Except Educational, Religious, and Charitable (vacation funds for employees)	525190	Other Insurance Funds	P
6733	Trusts, Except Educational, Religious, and Charitable (personal trusts, estates, and agency accounts)	525920	Trusts, Estates, and Agency Accounts	P
6792	Oil Royalty Traders (investing on own account)	523910	Miscellaneous Intermediation	P
6792	Oil Royalty Traders (oil and gas royalty leasing)	533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	P
6794	Patent Owners and Lessors	533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	P
6798	Real Estate Investment Trusts	525930	Real Estate Investment Trusts	P
6799	Investors, NEC (commodity contract trading companies)	523130	Commodity Contracts Dealing	P
6799	Investors, NEC (venture capital companies, investment clubs, and speculators for own account)	523910	Miscellaneous Intermediation	P
6799	Investors, NEC (commodity contract pool operators)	523920	Portfolio Management	P
7291	Tax Return Preparation Services	541213	Tax Preparation Services	P
7311	Advertising Agencies	541810	Advertising Agencies	P
7312	Outdoor Advertising Services	541850	Display Advertising	
7313	Radio, Television, and Publishers' Advertising Representatives	541840	Media Representatives	P
7319	Advertising, NEC (using general purpose aircraft for aerial advertising and a variety of other services)	481219	Other Nonscheduled Air Transportation	X

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7319	Advertising, NEC (media buying services)	541830	Media Buying Agencies	P
7319	Advertising, NEC (display advertising, aerial advertising using special purpose aircraft, such as blimps)	541850	Display Advertising	P
7319	Advertising, NEC (advertising materials distributor)	541870	Advertising Material Distribution Services	
7319	Advertising, NEC (except media buying, display advertising, except outdoor; and advertising material distributors)	541890	Other Services Related to Advertising	
7322	Adjustment and Collection Services	561440	Collection Agencies	P
7323	Credit Reporting Services	561450	Credit Bureaus	P
7331	Direct Mail Advertising Services (mailing list compilers)	511140	Directory and Mailing List Publishers	P
7331	Direct Mail Advertising Services (except mailing list compilers)	541860	Direct Mail Advertising	P
7334	Photocopying and Duplicating Services (quick printing)	323114	Quick Printing	
7334	Photocopying and Duplicating Services (except quick printing)	561439	Other Business Service Centers (including Copy Shops)	P
7335	Commercial Photography (using general purpose aircraft for aerial photography and a variety of other services)	481219	Other Nonscheduled Air Transportation	
7335	Commercial Photography (except using general purpose aircraft for aerial photography and a variety of other services)	541922	Commercial Photography	
7336	Commercial Art and Graphic Design	541430	Graphic Design Services	P
7338	Secretarial and Court Reporting (secretarial services)	561410	Document Preparation Services	P
7338	Secretarial and Court Reporting (court reporting services)	561492	Court Reporting and Stenotype Services	P
7361	Employment Agencies (executive placement services)	541612	Human Resources and Executive Search Consulting Services	P
7361	Employment Agencies (except executive placement services)	561310	Employment Placement Agencies	P
7363	Help Supply Services (temporary help services)	561320	Temporary Help Services	P
7363	Help Supply Services (employee leasing services, professional employer organizations)	561330	Professional Employer Organizations	P
7371	Computer Programming Services	541511	Custom Computer Programming Services	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7372	Prepackaged Software (mass reproduction of software)	334611	Software Reproducing	P
7372	Prepackaged Software (software publishing)	511210	Software Publishers	P
7373	Computer Integrated Systems Design	541512	Computer Systems Design Services	P
7374	Computer Processing and Data Preparation and Processing Services	518210	Data Processing, Hosting, and Related Services	P
7375	Information Retrieval Services (Internet service providers and Internet access providers)	518111	Internet Service Providers	P
7376	Computer Facilities Management Services	541513	Computer Facilities Management Services	P
7377	Computer Rental and Leasing	532420	Office Machinery and Equipment Rental and Leasing	P
7378	Computer Maintenance and Repair (sales locations providing supporting repair services as major source of receipts)	443120	Computer and Software Stores	P
7378	Computer Maintenance and Repair (except sales locations providing supporting repair services as major source of revenue)	811212	Computer and Office Machine Repair and Maintenance	P
7379	Computer Related Services, NEC (disk conversion services)	518210	Data Processing, Hosting, and Related Services	P
7379	Computer Related Services, NEC (computer systems consultants)	541512	Computer Systems Design Services	P
7379	Computer Related Services, NEC (except computer systems consultants and disk conversion services)	541519	Other Computer Related Services	P
7381	Detective, Guard, and Armored Car Services (detective services)	561611	Investigation Services	P
7381	Detective, Guard, and Armored Car Services (guard services)	561612	Security Guards and Patrol Services	
7381	Detective, Guard, and Armored Car Services (armored car services)	561613	Armored Car Services	
7382	Security Systems Services	561621	Security Systems Services (except Locksmiths)	P
7383	News Syndicates (except independent news correspondents)	519110	News Syndicates	P
7383	News Syndicates (independent news correspondents)	711510	Independent Artists, Writers, and Performers	P
7384	Photofinishing Laboratories (except one-hour)	812921	Photofinishing Laboratories (except One-Hour)	
7384	Photofinishing Laboratories (one-hour)	812922	One-Hour Photofinishing	
7389	Business Services, NEC (tobacco sheeting service)	312229	Other Tobacco Product Manufacturing	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7389	Business Services, NEC (sponging, shrinking, etc. fabric for tailors and dress makers, batik work)	313311	Broadwoven Fabric Finishing Mills	
7389	Business Services, NEC (embroidery of advertising on shirts and rug binding for the trade)	314999	All Other Miscellaneous Textile Product Mills	
7389	Business Services, NEC (aerosol packaging, solvent recovery service-contract)	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	
7389	Business Services, NEC (yacht brokers)	425120	Wholesale Trade Agents and Brokers	
7389	Business Services, NEC (driving services, e.g., auto or truck delivery and pilot car services)	488490	Other Support Activities for Road Transportation	
7389	Business Services, NEC (post office contract stations)	491110	Postal Service	P
7389	Business Services, NEC (recording studios)	512240	Sound Recording Studios	P
7389	Business Services, NEC (audio taping services)	512290	Other Sound Recording Industries	P
7389	Business Services, NEC (microfilm services)	518210	Data Processing, Hosting, and Related Services	P
7389	Business Services, NEC (press clipping services and stock photo agencies)	519190	All Other Information Services	P
7389	Business Services, NEC (credit card and check validation service)	522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	P
7389	Business Services, NEC (process services, patent agents, notaries public, paralegal services)	541199	All Other Legal Services	P
7389	Business Services, NEC (drafting service)	541340	Drafting Services	P
7389	Business Services, NEC (home and building inspection services)	541350	Building Inspection Services	P
7389	Business Services, NEC (map making services)	541370	Surveying and Mapping (except Geophysical) Services	P
7389	Business Services, NEC (interior design)	541410	Interior Design Services	P
7389	Business Services, NEC (industrial design)	541420	Industrial Design Services	P
7389	Business Services, NEC (fashion, furniture, and other design services)	541490	Other Specialized Design Services	P
7389	Business Services, NEC (distribution of telephone directories on a fee or contract basis)	541870	Advertising Material Distribution Services	P
7389	Business Services, NEC (sign painting and lettering, showcard painting, mannequin decorating service and other advertising related business services)	541890	Other Services Related to Advertising	P
7389	Business Services, NEC (translation and interpretation services)	541930	Translation and Interpretation Services	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7389	Business Services (appraisers except insurance and real estate, outplacement services, and miscellaneous professional, scientific, and technical services)	541990	All Other Professional, Scientific, and Technical Services	P
7389	Business Services, NEC (radio transcription services)	561410	Document Preparation Services	P
7389	Business Services, NEC (telephone answering services)	561421	Telephone Answering Services	C
7389	Business Services, NEC (telemarketing bureaus and telephone soliciting)	561422	Telemarketing Bureaus	C
7389	Business Services, NEC (private mail centers and mailbox rental)	561431	Private Mail Centers	
7389	Business Services, NEC (other business service centers, except private mail centers and mailbox rental)	561439	Other Business Service Centers (including Copy Shops)	
7389	Business Services, NEC (tax collection for federal, state, or local agencies)	561440	Collection Agencies	
7389	Business Services, NEC (recovery and repossession services)	561491	Repossession Services	
7389	Business Services, NEC (business support services except telephone answering, telemarketing bureaus, private mail centers and repossession services)	561499	All Other Business Support Services	
7389	Business Services, NEC (convention and visitors bureaus, tourist information bureaus)	561591	Convention and Visitors Bureaus	P
7389	Business Services, NEC (reservation systems for hotels, restaurants, and time-share condominium exchanges)	561599	All Other Travel Arrangement and Reservation Services	P
7389	Business Services, NEC (swimming pool cleaning and maintenance)	561790	Other Services to Buildings and Dwellings	
7389	Business Services, NEC (packaging and labeling services)	561910	Packaging and Labeling Services	
7389	Business Services, NEC (convention and trade show services)	561920	Convention and Trade Show Organizers	P
7389	Business Services, NEC (other support services except packaging and labeling, convention and trade shows services, convention and visitor bureaus, tourist information bureaus)	561990	All Other Support Services	C

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals with facilities)	711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	C
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals without facilities)	711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities	P
7389	Business Services, NEC (agents and brokers for authors and artists and speaker bureaus)	711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	P
7389	Business Services, NEC (apparel pressing service for the trade)	812320	Drycleaning and Laundry Services (except Coin-Operated)	
7389	Miscellaneous Business Services (bail bonding)	812990	All Other Personal Services	
7534	Tire Retreading and Repair Shops (rebuilding tires and retreaded tire manufacturing)	326212	Tire Retreading	
7534	Tire Retreading and Repair Shops (tire repair)	811198	All Other Automotive Repair and Maintenance	C
7536	Automotive Glass Replacement Shops	811122	Automotive Glass Replacement Shops	C
7537	Automotive Transmission Repair Shops	811113	Automotive Transmission Repair	C
7538	General Automotive Repair Shops	811111	General Automotive Repair	C
7539	Automotive Repair Shops, NEC (except automotive air-conditioning repair)	811118	Other Automotive Mechanical and Electrical Repair and Maintenance	C
7539	Automotive Repair Shops, NEC (automotive air-conditioning repair)	811198	All Other Automotive Repair and Maintenance	C
7542	Carwashes	811192	Car Washes	C
7549	Automotive Services, Except Repair and Carwashes (towing)	488410	Motor Vehicle Towing	
7549	Automotive Services, Except Repair and Carwashes (automotive window tinting)	811122	Automotive Glass Replacement Shops	
7549	Automotive Services, Except Repair and Carwashes (lubricating service, automotive)	811191	Automotive Oil Change and Lubrication Shops	C
7549	Automotive Services, Except Repair and Carwashes (except automotive lubricating, automotive window tinting, and towing services)	811198	All Other Automotive Repair and Maintenance	
7622	Radio and Television Repair Shops (household antenna installation and household-type satellite dish installation)	238290	Other Building Equipment Contractors	C
7622	Radio and Television Repair Shops (new retail sales combined with repair-repair services as major source of receipts)	443112	Radio, Television, and Other Electronics Stores	
7622	Radio and Television Repair Shops (stereo, TV, VCR, and radio repair)	811211	Consumer Electronics Repair and Maintenance	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
7622	Radio and Television Repair Shops (telecommunication equipment repair)	811213	Communication Equipment Repair and Maintenance	
7819	Services Allied to Motion Picture Production (reproduction of video)	334612	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	
7819	Services Allied to Motion Picture Production (teleproduction and postproduction services)	512191	Teleproduction and Other Postproduction Services	
7819	Services Allied to Motion Picture Production (except casting bureaus, wardrobe and equipment rental, talent payment services, teleproduction and other postproduction services, reproduction of videos, independent film directors, and other independent motion picture production related services)	512199	Other Motion Picture and Video Industries	
7819	Services Allied to Motion Picture Production (wardrobe rental for motion picture film production)	532220	Formal Wear and Costume Rental	
7819	Services Allied to Motion Picture Production (motion picture equipment rental)	532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	
7819	Services Allied to Motion Picture Production (talent payment services)	541214	Payroll Services	P
7819	Services Allied to Motion Picture Production (motion picture consulting)	541690	Other Scientific and Technical Consulting Services	
7819	Services Allied to Motion Picture Production (casting bureaus)	561310	Employment Placement Agencies	P
7819	Services Allied to Motion Picture Production (film directors and related motion picture production services, independent)	711510	Independent Artists, Writers, and Performers	P
7997	Membership Sports and Recreation Clubs (flying clubs primarily providing a variety of flying services to the public using general purpose aircraft)	481219	Other Nonscheduled Air Transportation	X
7997	Membership Sports and Recreation Clubs (flying fields operated by aviation clubs)	488119	Other Airport Operations	X
7997	Membership Sports and Recreation Clubs (golf clubs)	713910	Golf Courses and Country Clubs	C
7997	Membership Sports and Recreation Clubs (recreation clubs with facilities)	713940	Fitness and Recreational Sports Centers	C
7997	Membership Sports and Recreation Clubs (recreation clubs without facilities)	713990	All Other Amusement and Recreation Industries	C

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8011	Offices and Clinics of Doctors of Medicine (except mental health specialists, HMO medical centers, and ambulatory surgical and emergency centers)	621111	Offices of Physicians (except Mental Health Specialists)	P
8011	Offices and Clinics of Doctors of Medicine (mental health specialists)	621112	Offices of Physicians, Mental Health Specialists	P
8011	Offices and Clinics of Doctors of Medicine (HMO Medical Centers)	621491	HMO Medical Centers	P
8011	Offices and Clinics of Doctors of Medicine (ambulatory surgical and emergency centers)	621493	Freestanding Ambulatory Surgical and Emergency Centers	P
8021	Offices and Clinics of Dentists	621210	Offices of Dentists	P
8031	Offices and Clinics of Doctors of Osteopathy (except mental health specialists)	621111	Offices of Physicians (except Mental Health Specialists)	P
8031	Offices and Clinics of Doctors of Osteopathy (mental health specialists)	621112	Offices of Physicians, Mental Health Specialists	P
8041	Offices and Clinics of Chiropractors	621310	Offices of Chiropractors	P
8042	Offices and Clinics of Optometrists	621320	Offices of Optometrists	P
8043	Offices and Clinics of Podiatrists	621391	Offices of Podiatrists	P
8049	Offices and Clinics of Health Practitioners, NEC (mental health practitioners except physicians)	621330	Offices of Mental Health Practitioners (except Physicians)	P
8049	Offices and Clinics of Health Practitioners, NEC (physical, occupational, recreational and speech therapists, and audiologists)	621340	Offices of Physical, Occupational Speech Therapists, and Audiologists	P
8049	Offices and Clinics of Health Practitioners, NEC (except mental health practitioners, physical, occupational, speech therapists, and audiologists)	621399	Offices of All Other Miscellaneous Health Practitioners	P
8093	Specialty Outpatient Facilities, NEC (respiratory therapy clinics and offices)	621399	Offices of All Other Miscellaneous Health Practitioners	C
8093	Specialty Outpatient Facilities, NEC (family planning centers)	621410	Family Planning Centers	
8093	Specialty Outpatient Facilities, NEC (mental health facilities)	621420	Outpatient Mental Health and Substance Abuse Centers	
8093	Specialty Outpatient Facilities, NEC (except family planning centers, mental health centers, and respiratory therapy clinics and offices)	621498	All Other Outpatient Care Centers	
8111	Legal Services	541110	Offices of Lawyers	P
8211	Elementary and Secondary Schools	611110	Elementary and Secondary Schools	X
8221	Colleges, Universities, and Professional Schools	611310	Colleges, Universities, and Professional Schools	C
8222	Junior Colleges and Technical Institutes	611210	Junior Colleges	C

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8231	Libraries	519120	Libraries and Archives	C
8243	Data Processing Schools (except computer repair training)	611420	Computer Training	
8243	Data Processing Schools (computer repair training)	611519	Other Technical and Trade Schools	C
8244	Business and Secretarial Schools	611410	Business and Secretarial Schools	P
8249	Vocational Schools, NEC (aviation schools, excluding flying instruction)	611512	Flight Training	P
8249	Vocational Schools, NEC (vocational apprenticeship training)	611513	Apprenticeship Training	C
8249	Vocational Schools, NEC (except aviation and flight training and apprenticeship training)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (professional and management development training)	611430	Professional and Management Development Training	
8299	Schools and Educational Services, NEC (flying instruction)	611512	Flight Training	
8299	Schools and Educational Services, NEC (cooking and modeling schools)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (art, drama, and music schools)	611610	Fine Arts Schools	
8299	Schools and Educational Services, NEC (baton instruction)	611620	Sports and Recreation Instruction	
8299	Schools and Educational Services, NEC (language schools)	611630	Language Schools	P
8299	Schools and Educational Services, NEC (exam preparation and tutoring)	611691	Exam Preparation and Tutoring	P
8299	Schools and Educational Services, NEC (automobile driving instruction)	611692	Automobile Driving Schools	
8299	Schools and Educational Services, NEC (except professional and management training, aviation and flight training, fine arts schools, language schools, exam preparation and tutoring, automobile driving schools, and educational support services)	611699	All Other Miscellaneous Schools and Instruction	
8299	Schools and Educational Services NEC (educational support services)	611710	Educational Support Services	
8322	Individual and Family Social Services (child and youth services)	624110	Child and Youth Services	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8322	Individual and Family Social Services (services for the elderly and disabled)	624120	Services for the Elderly and Persons with Disabilities	C
8322	Individual and Family Social Services (except services for children, youth, elderly, and disabled; community food assistance services; housing services (except temporary), emergency and relief services, and government parole or probation offices)	624190	Other Individual and Family Services	C
8322	Individual and Family Social Services (community food assistance services)	624210	Community Food Services	
8322	Individual and Family Social Services (temporary shelter)	624221	Temporary Shelters	
8322	Individual and Family Social Services (housing services except temporary shelter)	624229	Other Community Housing Services	
8322	Individual and Family Social Services (emergency and relief services)	624230	Emergency and Other Relief Services	
8322	Individual and Family Social Services (government parole and probation offices)	922150	Parole Offices and Probation Offices	
8331	Job Training and Vocational Rehabilitation Services	624310	Vocational Rehabilitation Services	
8351	Child Day Care Services	624410	Child Day Care Services	C
8361	Residential Care (homes for the mentally handicapped with incidental health care)	623210	Residential Mental Retardation Facilities	
8361	Residential Care (mental health and substance abuse facilities)	623220	Residential Mental Health and Substance Abuse Facilities	
8361	Residential Care (homes for the elderly)	623312	Homes for the Elderly	
8361	Residential Care (except mental health and substance abuse facilities, homes for the elderly, and homes for the mentally handicapped with incidental health care)	623990	Other Residential Care Facilities	
8399	Social Services, NEC (voluntary health organizations)	813212	Voluntary Health Organizations	P
8399	Social Services, NEC (grantmaking and giving)	813219	Other Grantmaking and Giving Services	P
8399	Social Services, NEC (human rights organizations)	813311	Human Rights Organizations	P
8399	Social Services, NEC (environment, conservation, and wildlife advocacy)	813312	Environment, Conservation and Wildlife Organizations	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8399	Social Services, NEC (except human rights, environment, conservation and wildlife advocacy organizations, grantmaking and giving, and voluntary health organizations)	813319	Other Social Advocacy Organizations	P
8412	Museums and Art Galleries (except historic and heritage sites)	712110	Museums	
8412	Museums and Art Galleries (historic and heritage sites)	712120	Historical Sites	C
8422	Arboreta and Botanical or Zoological Gardens (except nature parks and reserves)	712130	Zoos and Botanical Gardens	
8422	Arboreta and Botanical or Zoological Gardens (nature parks and reserves)	712190	Nature Parks and Other Similar Institutions	
8611	Business Associations	813910	Business Associations	P
8621	Professional Membership Organizations	813920	Professional Organizations	P
8631	Labor Unions and Similar Labor Organizations	813930	Labor Unions and Similar Labor Organizations	P
8641	Civic, Social, and Fraternal Associations (taxpayers' associations, tenants' advocacy associations, temperance organizations)	813319	Other Social Advocacy Organizations	
8641	Civic, Social, and Fraternal Associations (except condominium and homeowner associations, taxpayers associations, tenants advocacy associations, temperance organizations, and Indian and Alaska Native Tribal Councils)	813410	Civic and Social Organizations	p
8641	Civic, Social, and Fraternal Associations (condominium and homeowner associations)	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	P
8641	Civic, Social, and Fraternal Associations (Indian and Alaska Native Tribal Councils)	921150	American Indian and Alaska Native Tribal Governments	P
8651	Political Organizations	813940	Political Organizations	P
8661	Religious Organizations	813110	Religious Organizations	C
8699	Membership Organizations, NEC (travel motor clubs)	561599	All Other Travel Arrangement and Reservation Services	P
8699	Membership Organizations, NEC (humane societies)	813312	Environment, Conservation and Wildlife Organizations	P
8699	Membership Organizations, NEC (except humane societies, farm business organizations, athletic associations, and travel motor clubs)	813410	Civic and Social Organizations	P
8699	Membership Organizations, NEC (farm business organizations)	813910	Business Associations	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8699	Membership Organizations, NEC (athletic associations)	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	P
8711	Engineering Services	541330	Engineering Services	P
8712	Architectural Services	541310	Architectural Services	P
8713	Surveying Services (geophysical surveying)	541360	Geophysical Surveying and Mapping Services	P
8713	Surveying Services (except geophysical surveying)	541370	Surveying and Mapping (except Geophysical) Services	P
8721	Accounting, Auditing, and Bookkeeping Services (auditing accountants)	541211	Offices of Certified Public Accountants	P
8721	Accounting, Auditing, and Bookkeeping Services (payroll services)	541214	Payroll Services	P
8721	Accounting, Auditing, and Bookkeeping Services (other accounting services)	541219	Other Accounting Services	P
8731	Commercial Physical and Biological Research	541710	Research and Development in the Physical, Engineering, and Life Sciences	
8732	Commercial Economic, Sociological, and Educational Research (social sciences and humanities)	541720	Research and Development in the Social Sciences and Humanities	P
8732	Commercial Economic, Sociological, and Educational Research (market research and opinion research)	541910	Marketing Research and Public Opinion Polling	P
8741	Management Services (single-family housing construction management)	236115	New Single-Family Housing Construction (except Operative Builders)	X
8741	Management Services (multifamily housing construction management)	236116	New Multifamily Housing Construction (except Operative Builders)	X
8741	Management Services (residential remodeling construction management)	236118	Residential Remodelers	X
8741	Management Services (industrial building and nonbuilding structure construction management)	236210	Industrial Building Construction	X
8741	Management Services (commercial and institutional building construction management)	236220	Commercial and Institutional Building Construction	X
8741	Management Services (construction management of water, sewer, and related structure construction projects)	237110	Water and Sewer Line and Related Structures Construction	X
8741	Management Services (construction management of oil and gas pipelines and related structure construction projects)	237120	Oil and Gas Pipeline and Related Structures Construction	X

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8741	Management Services (construction management of power generation [except hydroelectric] facilities, and transmission and distribution station construction projects)	237130	Power and Communication Line and Related Structures Construction	X
8741	Management Services (highway, street, and bridge construction management)	237310	Highway, Street, and Bridge Construction	X
8741	Management Services (construction management for other heavy and civil engineering construction)	237990	Other Heavy and Civil Engineering Construction	X
8741	Management Services (except construction management)	561110	Office Administrative Services	P
8742	Management Consulting Services (administrative management and general management consulting)	541611	Administrative Management and General Management Consulting Services	P
8742	Management Consulting Services (human resources and personnel management consulting)	541612	Human Resources and Executive Search Consulting Services	P
8742	Management Consulting Services (marketing consulting)	541613	Marketing Consulting Services	P
8742	Management Consulting Services (manufacturing management, physical distribution, and site location consulting)	541614	Process, Physical Distribution, and Logistics Consulting Services	P
8743	Public Relations Services	541820	Public Relations Agencies	P
8744	Facilities Support Management Services	561210	Facilities Support Services	
8748	Business Consulting Services, NEC (urban planners and industrial development organizations)	541320	Landscape Architectural Services	P
8748	Business Consulting Services, NEC (traffic consultants)	541330	Engineering Services	P
8748	Business Consulting Services, NEC (except educational testing and consulting, economic consulting, safety and security, agriculture consulting, environmental consulting firms, urban planning and industrial development organizations)	541618	Other Management Consulting Services	P
8748	Business Consulting Services, NEC (safety, security, agriculture, and economic consultants)	541690	Other Scientific and Technical Consulting Services	P
8748	Business Consulting Services, NEC (educational test development and evaluation services, educational testing services, and educational consultants)	611710	Educational Support Services	P
8811	Private Households	814110	Private Households	
8999	Services, NEC (record production)	512210	Record Production	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
8999	Services, NEC (music publishing)	512230	Music Publishers	P
8999	Services, NEC (Internet broadcasting, special interest web sites, entertainment sites, and interactive game sites)	516110	Internet Publishing and Broadcasting	P
8999	Services, NEC (Internet web search portals)	518112	Web Search Portals	P
8999	Services, NEC (actuarial consulting)	541612	Human Resources and Executive Search Consulting Services	P
8999	Services, NEC (environmental consultants)	541620	Environmental Consulting Services	P
8999	Services, NEC (scientific and related consulting services)	541690	Other Scientific and Technical Consulting Services	P
8999	Services, NEC (weather forecasting services)	541990	All Other Professional, Scientific, and Technical Services	P
8999	Services, NEC (authors, artists, and related technical services, independent)	711510	Independent Artists, Writers, and Performers	P
9111	Executive Offices	921110	Executive Offices	P
9121	Legislative Bodies	921120	Legislative Bodies	P
9131	Executive and Legislative Office Combined	921140	Executive and Legislative Offices, Combined	P
9199	General Government, NEC	921190	Other General Government Support	P
9211	Courts	922110	Courts	P
9221	Police Protection	922120	Police Protection	P
9222	Legal Counsel and Prosecution	922130	Legal Counsel and Prosecution	P
9223	Correctional Institutions	922140	Correctional Institutions	
9224	Fire Protection	922160	Fire Protection	P
9229	Public Order and Safety, NEC	922190	All Other Justice, Public Order, and Safety Activities	C
9311	Public Finance, Taxation, and Monetary Policy	921130	Public Finance Activities	P
9411	Administration of Educational Programs	923110	Administration of Education Programs	P
9431	Administration of Public Health Programs	923120	Administration of Public Health Programs	P
9441	Administration of Social, Human Resource and Income Maintenance Programs	923130	Administration of Human Resource Programs (except Education, Public Health, and Veteran's Affairs Programs)	P
9451	Administration of Veterans' Affairs, Except Health and Insurance	923140	Administration of Veteran's Affairs	P
9511	Air and Water Resource and Solid Waste Management	924110	Administration of Air and Water Resource and Solid Waste Management Programs	P
9512	Land, Mineral, Wildlife, and Forest Conservation	924120	Administration of Conservation Programs	P
9531	Administration of Housing Programs	925110	Administration of Housing Programs	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	PO
9532	Administration of Urban Planning and Community and Rural Development	925120	Administration of Urban Planning and Community and Rural Development	P
9611	Administration of General Economic Programs	926110	Administration of General Economic Programs	P
9621	Regulation and Administration of Transportation Programs (government air traffic control)	488111	Air Traffic Control	P
9621	Regulation and Administration of Transportation Programs (except air traffic control)	926120	Regulation and Administration of Transportation Programs	P
9631	Regulation and Administration of Communications, Electric, Gas, and Other Utilities	926130	Regulation and Administration of Communications, Electric, Gas, and Other Utilities	P
9641	Regulation of Agricultural Marketing and Commodities	926140	Regulation of Agricultural Marketing and Commodities	P
9651	Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors	926150	Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors	P
9661	Space Research and Technology	927110	Space Research and Technology	P
9711	National Security	928110	National Security	P
9721	International Affairs	928120	International Affairs	P
Aux	These establishments were included as auxiliaries in the 1987 Standard Industrial Classification	551114	Corporate, Subsidiary, and Regional Managing Offices	P
	Null Set for U.S.	112130	Dual Purpose Cattle Ranching and Farming	
	Null Set for U.S.	541120	Offices of Notaries	P

Research Office

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
1629	Heavy Construction, NEC (Industrial nonbuilding structures [except petrochemical plants and petroleum refineries])	236210	Industrial Building Construction	
1629	Heavy Construction NEC (irrigation systems, sewage treatment plants, and water treatment plants)	237110	Water and Sewer Line and Related Structures Construction	
1629	Heavy Construction, NEC (petrochemical plants and refineries)	237120	Oil and Gas Pipeline and Related Structures Construction	
1629	Heavy Construction, NEC (power generation plants [except hydroelectric dams], transmission stations, and distribution stations)	237130	Power and Communication Line and Related Structures Construction (Communication Towers Only)	C
1629	Heavy Construction, NEC (except industrial nonbuilding structures, irrigation systems, sewage and water treatment plants, petrochemical plants and refineries, power generation plants [except hydroelectric dams] transmission and distribution stations, right-of-way clearing, line slashing, blasting, and trenching)	237990	Other Heavy and Civil Engineering Construction (Office Only)	
1629	Heavy Construction, NEC (right-of-way clearing and line slashing, blasting, and trenching)	238910	Site Preparation Contractors(Office Only)	
2824	Manmade Organic Fibers, Except Cellulosic	325222	Noncellulosic Organic Fiber Manufacturing	C
2833	Medicinal Chemicals and Botanical Products	325411	Medicinal and Botanical Manufacturing	C
2834	Pharmaceutical Preparations	325412	Pharmaceutical Preparation Manufacturing	C
2835	In Vitro and In Vivo Diagnostic Substances (except in-vitro diagnostic substances)	325412	Pharmaceutical Preparation Manufacturing	
2835	In Vitro and In Vivo Diagnostic Substances (in-vitro diagnostic substances)	325413	In-Vitro Diagnostic Substance Manufacturing	
2836	Biological Products, Except Diagnostic Substances	325414	Biological Product (except Diagnostic) Manufacturing	C
3721	Aircraft (except research and development not producing prototypes)	336411	Aircraft Manufacturing	
3721	Aircraft (research and development not producing prototypes)	541710	Research and Development in the Physical, Engineering, and Life Sciences	P
3724	Aircraft Engines and Engine Parts (except research and development not producing prototypes)	336412	Aircraft Engine and Engine Parts Manufacturing	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
3724	Aircraft Engines and Engine Parts (research and development not producing prototypes)	541710	Research and Development in the Physical, Engineering, and Life Sciences	P
4812	Radiotelephone Communications (paging carriers)	517211	Paging	
4812	Radiotelephone Communications (cellular carriers)	517212	Cellular and Other Wireless Telecommunications	C
4812	Radiotelephone Communications (paging and cellular resellers)	517310	Telecommunications Resellers	
5812	Eating Places (dinner theaters)	711110	Theater Companies and Dinner Theaters	C
5812	Eating Places (full-service restaurants)	722110	Full-Service Restaurants	C
5812	Eating Places (limited-service restaurants)	722211	Limited-Service Restaurants	C
5812	Eating Places (cafeterias)	722212	Cafeterias	C
5812	Eating Places (snack and nonalcoholic beverage bars)	722213	Snack and Nonalcoholic Beverage Bars	C
5812	Eating Places (food service contractors)	722310	Food Service Contractors	C
5812	Eating Places (caterers)	722320	Caterers	C
5813	Drinking Places (Alcoholic Beverages)	722410	Drinking Places (Alcoholic Beverages)	C
5912	Drug Stores and Proprietary Stores	446110	Pharmacies and Drug Stores	
5921	Liquor Stores	445310	Beer, Wine, and Liquor Stores	
5932	Used Merchandise Stores (except pawn shops)	453310	Used Merchandise Stores (Except Pawnshops)	
5932	Used Merchandise Stores (pawnshops)	522298	All Other Nondepository Credit Intermediation (EXCEPT PAWN SHOPS)	
5963	Direct Selling Establishments (except mobile food services and food wagons)	454390	Other Direct Selling Establishments	
5963	Direct Selling Establishments (mobile food services and food wagons)	722330	Mobile Food Services	C
5983	Fuel Oil Dealers	454311	Heating Oil Dealers	
7371	Computer Programming Services	541511	Custom Computer Programming Services	P
7389	Business Services, NEC (tobacco sheeting service)	312229	Other Tobacco Product Manufacturing	
7389	Business Services, NEC (sponging, shrinking, etc. fabric for tailors and dress makers, batik work)	313311	Broadwoven Fabric Finishing Mills	
7389	Business Services, NEC (embroidery of advertising on shirts and rug binding for the trade)	314999	All Other Miscellaneous Textile Product Mills	
7389	Business Services, NEC (aerosol packaging, solvent recovery service-contract)	325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	
7389	Business Services, NEC (yacht brokers)	425120	Wholesale Trade Agents and Brokers	
7389	Business Services, NEC (driving services, e.g., auto or truck delivery and pilot car services)	488490	Other Support Activities for Road Transportation	
7389	Business Services, NEC (post office contract stations)	491110	Postal Service	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
7389	Business Services, NEC (recording studios)	512240	Sound Recording Studios	
7389	Business Services, NEC (audio taping services)	512290	Other Sound Recording Industries	
7389	Business Services, NEC (microfilm services)	518210	Data Processing, Hosting, and Related Services	
7389	Business Services, NEC (press clipping services and stock photo agencies)	519190	All Other Information Services	
7389	Business Services, NEC (credit card and check validation service)	522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	
7389	Business Services, NEC (process services, patent agents, notaries public, paralegal services)	541199	All Other Legal Services	
7389	Business Services, NEC (drafting service)	541340	Drafting Services	
7389	Business Services, NEC (home and building inspection services)	541350	Building Inspection Services	
7389	Business Services, NEC (map making services)	541370	Surveying and Mapping (except Geophysical) Services	
7389	Business Services, NEC (interior design)	541410	Interior Design Services	
7389	Business Services, NEC (industrial design)	541420	Industrial Design Services	
7389	Business Services, NEC (fashion, furniture, and other design services)	541490	Other Specialized Design Services	
7389	Business Services, NEC (distribution of telephone directories on a fee or contract basis)	541870	Advertising Material Distribution Services	
7389	Business Services, NEC (sign painting and lettering, showcard painting, mannequin decorating service and other advertising related business services)	541890	Other Services Related to Advertising	
7389	Business Services, NEC (translation and interpretation services)	541930	Translation and Interpretation Services	
7389	Business Services (appraisers except insurance and real estate, outplacement services, and miscellaneous professional, scientific, and technical services)	541990	All Other Professional, Scientific, and Technical Services	
7389	Business Services, NEC (radio transcription services)	561410	Document Preparation Services	
7389	Business Services, NEC (telephone answering services)	561421	Telephone Answering Services	
7389	Business Services, NEC (telemarketing bureaus and telephone soliciting)	561422	Telemarketing Bureaus	
7389	Business Services, NEC (private mail centers and mailbox rental)	561431	Private Mail Centers	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
7389	Business Services, NEC (other business service centers, except private mail centers and mailbox rental)	561439	Other Business Service Centers (including Copy Shops)	
7389	Business Services, NEC (tax collection for federal, state, or local agencies)	561440	Collection Agencies	
7389	Business Services, NEC (recovery and repossession services)	561491	Repossession Services	
7389	Business Services, NEC (business support services except telephone answering, telemarketing bureaus, private mail centers and repossession services)	561499	All Other Business Support Services	
7389	Business Services, NEC (convention and visitors bureaus, tourist information bureaus)	561591	Convention and Visitors Bureaus	
7389	Business Services, NEC (reservation systems for hotels, restaurants, and time-share condominium exchanges)	561599	All Other Travel Arrangement and Reservation Services	
7389	Business Services, NEC (swimming pool cleaning and maintenance)	561790	Other Services to Buildings and Dwellings	
7389	Business Services, NEC (packaging and labeling services)	561910	Packaging and Labeling Services	
7389	Business Services, NEC (convention and trade show services)	561920	Convention and Trade Show Organizers	
7389	Business Services, NEC (other support services except packaging and labeling, convention and trade shows services, convention and visitor bureaus, tourist information bureaus)	561990	All Other Support Services	
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals with facilities)	711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	
7389	Business Services, NEC (promoters of air shows, heritage festivals, and ethnic festivals without facilities)	711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities	
7389	Business Services, NEC (agents and brokers for authors and artists and speaker bureaus)	711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	P
7389	Business Services, NEC (apparel pressing service for the trade)	812320	Drycleaning and Laundry Services (except Coin-Operated)	
7389	Miscellaneous Business Services (bail bonding)	812990	All Other Personal Services	
8211	Elementary and Secondary Schools	611110	Elementary and Secondary Schools	X
8221	Colleges, Universities, and Professional Schools	611310	Colleges, Universities, and Professional Schools	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
8222	Junior Colleges and Technical Institutes	611210	Junior Colleges	
8231	Libraries	519120	Libraries and Archives	C
8243	Data Processing Schools (except computer repair training)	611420	Computer Training	
8243	Data Processing Schools (computer repair training)	611519	Other Technical and Trade Schools	
8244	Business and Secretarial Schools	611410	Business and Secretarial Schools	
8249	Vocational Schools, NEC (aviation schools, excluding flying instruction)	611512	Flight Training	
8249	Vocational Schools, NEC (vocational apprenticeship training)	611513	Apprenticeship Training	
8249	Vocational Schools, NEC (except aviation and flight training and apprenticeship training)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (professional and management development training)	611430	Professional and Management Development Training	P
8299	Schools and Educational Services, NEC (flying instruction)	611512	Flight Training	
8299	Schools and Educational Services, NEC (cooking and modeling schools)	611519	Other Technical and Trade Schools	
8299	Schools and Educational Services, NEC (art, drama, and music schools)	611610	Fine Arts Schools	
8299	Schools and Educational Services, NEC (baton instruction)	611620	Sports and Recreation Instruction	
8299	Schools and Educational Services, NEC (language schools)	611630	Language Schools	
8299	Schools and Educational Services, NEC (exam preparation and tutoring)	611691	Exam Preparation and Tutoring	P
8299	Schools and Educational Services, NEC (automobile driving instruction)	611692	Automobile Driving Schools	
8299	Schools and Educational Services, NEC (except professional and management training, aviation and flight training, fine arts schools, language schools, exam preparation and tutoring, automobile driving schools, and educational support services)	611699	All Other Miscellaneous Schools and Instruction	
8299	Schools and Educational Services NEC (educational support services)	611710	Educational Support Services	P
8322	Individual and Family Social Services (child and youth services)	624110	Child and Youth Services	

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
8322	Individual and Family Social Services (services for the elderly and disabled)	624120	Services for the Elderly and Persons with Disabilities	C
8322	Individual and Family Social Services (except services for children, youth, elderly, and disabled; community food assistance services; housing services (except temporary), emergency and relief services, and government parole or probation offices)	624190	Other Individual and Family Services	C
8322	Individual and Family Social Services (community food assistance services)	624210	Community Food Services	
8322	Individual and Family Social Services (temporary shelter)	624221	Temporary Shelters	
8322	Individual and Family Social Services (housing services except temporary shelter)	624229	Other Community Housing Services	
8322	Individual and Family Social Services (emergency and relief services)	624230	Emergency and Other Relief Services	
8322	Individual and Family Social Services (government parole and probation offices)	922150	Parole Offices and Probation Offices	
8331	Job Training and Vocational Rehabilitation Services	624310	Vocational Rehabilitation Services	
8351	Child Day Care Services	624410	Child Day Care Services	C
8412	Museums and Art Galleries (except historic and heritage sites)	712110	Museums	
8412	Museums and Art Galleries (historic and heritage sites)	712120	Historical Sites	C
8661	Religious Organizations	813110	Religious Organizations	C
8699	Membership Organizations, NEC (travel motor clubs)	561599	All Other Travel Arrangement and Reservation Services	
8699	Membership Organizations, NEC (humane societies)	813312	Environment, Conservation and Wildlife Organizations	
8699	Membership Organizations, NEC (except humane societies, farm business organizations, athletic associations, and travel motor clubs)	813410	Civic and Social Organizations	
8699	Membership Organizations, NEC (farm business organizations)	813910	Business Associations	
8699	Membership Organizations, NEC (athletic associations)	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	
8711	Engineering Services	541330	Engineering Services	P
8712	Architectural Services	541310	Architectural Services	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
8713	Surveying Services (geophysical surveying)	541360	Geophysical Surveying and Mapping Services	P
8713	Surveying Services (except geophysical surveying)	541370	Surveying and Mapping (except Geophysical) Services	P
8721	Accounting, Auditing, and Bookkeeping Services (auditing accountants)	541211	Offices of Certified Public Accountants	P
8721	Accounting, Auditing, and Bookkeeping Services (payroll services)	541214	Payroll Services	P
8721	Accounting, Auditing, and Bookkeeping Services (other accounting services)	541219	Other Accounting Services	P
8731	Commercial Physical and Biological Research	541710	Research and Development in the Physical, Engineering, and Life Sciences	P
8732	Commercial Economic, Sociological, and Educational Research (social sciences and humanities)	541720	Research and Development in the Social Sciences and Humanities	P
8732	Commercial Economic, Sociological, and Educational Research (market research and opinion research)	541910	Marketing Research and Public Opinion Polling	P
8733	Noncommercial Research Organizations (physical, engineering, and life sciences)	541710	Research and Development in the Physical, Engineering, and Life Sciences	P
8733	Noncommercial Research Organizations (social sciences and humanities)	541720	Research and Development in the Social Sciences and Humanities	P
8734	Testing Laboratories (except veterinary testing laboratories)	541380	Testing Laboratories	P
8734	Testing Laboratories (veterinary testing laboratories)	541940	Veterinary Services	P
8741	Management Services (single-family housing construction management)	236115	New Single-Family Housing Construction (except Operative Builders)	X
8741	Management Services (multifamily housing construction management)	236116	New Multifamily Housing Construction (except Operative Builders)	X
8741	Management Services (residential remodeling construction management)	236118	Residential Remodelers	X
8741	Management Services (industrial building and nonbuilding structure construction management)	236210	Industrial Building Construction	X
8741	Management Services (commercial and institutional building construction management)	236220	Commercial and Institutional Building Construction	X
8741	Management Services (construction management of water, sewer, and related structure construction projects)	237110	Water and Sewer Line and Related Structures Construction	X

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
8741	Management Services (construction management of oil and gas pipelines and related structure construction projects)	237120	Oil and Gas Pipeline and Related Structures Construction	X
8741	Management Services (construction management of power generation [except hydroelectric] facilities, and transmission and distribution station construction projects)	237130	Power and Communication Line and Related Structures Construction	X
8741	Management Services (highway, street, and bridge construction management)	237310	Highway, Street, and Bridge Construction	X
8741	Management Services (construction management for other heavy and civil engineering construction)	237990	Other Heavy and Civil Engineering Construction	X
8741	Management Services (except construction management)	561110	Office Administrative Services	p
8742	Management Consulting Services (administrative management and general management consulting)	541611	Administrative Management and General Management Consulting Services	p
8742	Management Consulting Services (human resources and personnel management consulting)	541612	Human Resources and Executive Search Consulting Services	p
8742	Management Consulting Services (marketing consulting)	541613	Marketing Consulting Services	p
8742	Management Consulting Services (manufacturing management, physical distribution, and site location consulting)	541614	Process, Physical Distribution, and Logistics Consulting Services	p
8743	Public Relations Services	541820	Public Relations Agencies	p
8744	Facilities Support Management Services	561210	Facilities Support Services	
8748	Business Consulting Services, NEC (urban planners and industrial development organizations)	541320	Landscape Architectural Services	P
8748	Business Consulting Services, NEC (traffic consultants)	541330	Engineering Services	P
8748	Business Consulting Services, NEC (except educational testing and consulting, economic consulting, safety and security, agriculture consulting, environmental consulting firms, urban planning and industrial development organizations)	541618	Other Management Consulting Services	P
8748	Business Consulting Services, NEC (safety, security, agriculture, and economic consultants)	541690	Other Scientific and Technical Consulting Services	P

SIC	SIC Title (and note)	2002 NAICS	2002 NAICS Title	RO
8748	Business Consulting Services, NEC (educational test development and evaluation services, educational testing services, and educational consultants)	611710	Educational Support Services	P
8811	Private Households	814110	Private Households	
8999	Services, NEC (record production)	512210	Record Production	P
8999	Services, NEC (music publishing)	512230	Music Publishers	P
8999	Services, NEC (Internet broadcasting, special interest web sites, entertainment sites, and interactive game sites)	516110	Internet Publishing and Broadcasting	P
8999	Services, NEC (Internet web search portals)	518112	Web Search Portals	P
8999	Services, NEC (actuarial consulting)	541612	Human Resources and Executive Search Consulting Services	P
8999	Services, NEC (environmental consultants)	541620	Environmental Consulting Services	P
8999	Services, NEC (scientific and related consulting services)	541690	Other Scientific and Technical Consulting Services	P
8999	Services, NEC (weather forecasting services)	541990	All Other Professional, Scientific, and Technical Services	P
8999	Services, NEC (authors, artists, and related technical services, independent)	711510	Independent Artists, Writers, and Performers	P
9111	Executive Offices	921110	Executive Offices	P
9121	Legislative Bodies	921120	Legislative Bodies	P
9131	Executive and Legislative Office Combined	921140	Executive and Legislative Offices, Combined	P
9199	General Government, NEC	921190	Other General Government Support	P
9211	Courts	922110	Courts	
9221	Police Protection	922120	Police Protection	P
9222	Legal Counsel and Prosecution	922130	Legal Counsel and Prosecution	P
9223	Correctional Institutions	922140	Correctional Institutions	
9224	Fire Protection	922160	Fire Protection	P
9229	Public Order and Safety, NEC	922190	All Other Justice, Public Order, and Safety Activities	C