



AGENDA
PLANNING AND ZONING COMMISSION MEETING
CITY OF CREVE COEUR, MISSOURI
MONDAY, DECEMBER 17, 2018
6:30 PM

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.

CALL TO ORDER

ROLL CALL

Ms. Beth Kistner (Chair)
Mr. Tim Carney
Ms. Muriel Hall
Mr. Don Magruder
Mr. James Myers
Mr. Gene Rovak
Mr. Matthew Schuh
Mr. Carl Lumley, City Attorney
Mr. Jason Jaggi, Director of Community Development
Ms. Whitney Kelly, City Planner
Ms. Jessica Stutte, Planning Assistant/Recording Secretary

ACCEPTANCE OF THE AGENDA

APPROVAL OF MINUTES

- 1. December 3, 2018 Planning and Zoning Commission Draft Meeting Minutes**

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.

UNFINISHED BUSINESS**NEW BUSINESS****1. Application #18-047: Minor Site Plan For The Sculpture And Plaza Area At Chaminade College Preparatory School**

Edward Griesedieck, of EJG Legal Consulting, LLC, has submitted an application on behalf of Chaminade College Preparatory School, located at 425 S. Lindbergh Blvd, for the placement of artwork and the creation of the courtyard in front of the chapel. The sculpture will be approximately 12 feet tall with a three foot base, for an overall height of 14 to 15 feet. On April 9, 2018, the City Council authorized a Master Sign Plan (Ordinance No. 5579) for the campus that included a condition that the proposed future plaza and sculpture shall be reviewed by the Planning and Zoning Commission as a minor site plan.

2. Application #18-049: Minor Site Plan Approval For The Exterior Modification To The Building And New LED Parking Lot Lighting At The Former HBE Building

Peter Conant, of HBE Corporation, has submitted an application for modifications to the exterior of the building, and new LED lighting throughout the site to renovate the building for offices. Section 405.680 Lighting states that the Planning and Zoning Commission shall review proposed lighting for non-residential building construction or for the replacement or addition of light standards on an existing non-residential development in accordance with Section 405.1080. Section 405.1080 requires minor site plan approval by the Planning and Zoning Commission for any proposed alteration that would significantly affect the exterior of a building or site. City Council action is not required.

WORK AGENDA**1. Medical Marijuana Zoning Regulations**

Staff will discuss upcoming text amendments to establish allowable zoning districts and other land use regulations pursuant to recent statewide vote legalizing medical marijuana processing and dispensaries.

DEPARTMENT REPORTS

Director of Community Development

ADJOURNMENT

Posted: _____
Jason W. Jaggi
Director of Community Development



DRAFT MINUTES
PLANNING AND ZONING COMMISSION MEETING
CITY OF CREVE COEUR, MISSOURI
MONDAY, DECEMBER 3, 2018
6:30 PM

CALL TO ORDER

ROLL CALL

Beth Kistner	Commission Chair
Tim Carney	Commission Member
Gene Rovak	Commission Member
Muriel Hall	Commission Member
Don Magruder	Commission Member
James Myers	Commission Member
Matthew Schuh	Commission Member

The following staff were also present: Carl Lumley, City Attorney; Jason Jaggi, Director of Community Development; Whitney Kelly, City Planner; and, Jessica Stutte, Planning Assistant/ Recording Secretary.

ACCEPTANCE OF THE AGENDA

Mr. Magruder made a motion to approve the agenda. Mr. Carney seconded. All in favor.

APPROVAL OF MINUTES

1. November 19, 2018 Planning and Zoning Commission Draft Meeting Minutes

Mr. Myers made a motion to approve the minutes for November 19, 2018. Mr. Carney seconded. All in favor.

PUBLIC COMMENT

None

UNFINISHED BUSINESS

1. Application #18-040: Conditional Use Permit and Site Development for PK Construction at 1200 Research Boulevard. Withdrawn

RESULT:	WITHDRAWN
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2. PUBLIC HEARING. Application #18-044: SITE PLAN, CONDITIONAL USE APPLICATION FOR ATHLETIC FIELD LIGHTING AND IMPROVEMENTS, AND EXERCISE TRAIL AND BRIDGE IMPROVEMENTS AT MISSOURI BAPTIST UNIVERSITY

Mr. Lumley stated that the public hearing had been completed at the prior meeting.

Mr. Jaggi spoke to St. Louis County's requirements regarding noise. He said their standard was the foundation for the City's requirements. He went over distinctions between daytime noise allowances and nighttime noise allowances. He said noise is regulated from where it is produced. He said the MBU property and surrounding land use is all categorized as residential.

Ms. Kistner asked about the difference between commercial and residential allowances.

Mr. Jaggi said more noise would be permitted in commercial districts.

Mr. Lumley said daytime noise can be louder and noise with a short duration can be louder.

Mr. Jaggi said they added in conditions that further protect the neighbors. He went over some of the conditions regarding the PA system.

He said the University was okay with the recommended conditions.

Mr. Schuh asked how the conditions compared to DeSmet and Chaminade.

Mr. Jaggi said they were quite similar to the conditions at Chaminade.

Mr. Stock confirmed the applicant agreed with the conditions.

Ms. Margie Hunter, a resident, asked how the sound compared to the Parkway School District. She asked to have the sound chart explained to her.

Mr. Stock said the acoustical engineer would ensure the PA system was in compliance.

Mr. Rovak made a motion to approve the application, with staff's proposed conditions Mr. Schuh seconded. All in favor.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Gene Rovak, Commission Member
SECONDER:	Matthew Schuh, Commission Member
AYES:	Kistner, Carney, Rovak, Hall, Magruder, Myers, Schuh

NEW BUSINESS

WORK AGENDA

1. Zoning Ordinance Update - Lindbergh Boulevard Corridor

Mr. Jaggi said he and Ms. Kelly had produced a report for the area on Lindbergh south of the Bayer campus. He said this district is all GC and they would look to consider changing the district to the

mixed Lindbergh area. He said there are challenges in this area. He said the plan does support a variety of uses.

He suggested common setback lines.

Ms. Kelly suggested the setbacks not be as deep as the East Olive District. She said 40-50ft setbacks would allow new buildings to be more in line with existing properties.

Mr. Myers said he was ok with 40 ft setbacks. He said that would benefit the residents and commercial businesses as well. He said parking would be on the side or the rear.

Mr. Rovak asked if cross access would be encouraged.

Mr. Jaggi confirmed it would be.

There was some discussion about 40 vs 50 feet setbacks. Fifty feet with a range of 40-60 feet was the consensus.

The building height was recommended to remain the same.

Mr. Jaggi said the table they created could also be used in this area for site coverage bonuses. He went over several other items they recommended would be the same as what was recommended for the East Olive District.

Ms. Kelly went over suggested allowed uses.

There was some discussion about the area being a support for the 39 N District.

Ms. Kelly asked the commission if they wanted to allow town homes.

Mr. Carney said walk-ability and density were important.

There was some discussion about density and the impact of town homes.

Ms. Kistner suggested it be permitted as a conditional use permit.

Ms. Kelly went over bank drive- thru's . She that they would require a conditional use permit.

Ms. Kelly spoke about timing and suggested the Commission take up the Lindbergh rezoning together with East Olive on February 4th.

RESULT:	ITEM DISCUSSED
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DEPARTMENT REPORTS

Mr. Jaggi went over upcoming text amendments and projects.

ADJOURNMENT

Mr. Rovak made a motion to adjourn. Ms. Hall seconded. All in favor.
Meeting adjourned at 7:55 pm



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
#18-047 FOR A MINOR SITE PLAN FOR THE SCULPTURE AND
PLAZA AREA AT CHAMINADE COLLEGE PREPARATORY SCHOOL**

FOR THE MEETING OF: Monday, December 17, 2018

SUBJECT PROPERTY LOCATION: 425 S. Lindbergh Boulevard, zoned A Single Family Residential District.

REQUEST: Edward Griesedieck, of EJG Legal Consulting, LLC, has submitted an application on behalf of Chaminade College Preparatory School, located at 425 S. Lindbergh Blvd, for the placement of artwork and the creation of the courtyard in front of the chapel. The sculpture will be approximately 12 feet tall with a three foot base, for an overall height of 14 to 15 feet.

ADDITIONAL INFORMATION: On April 9, 2018, the City Council authorized a Master Sign Plan (Ordinance No. 5579) for the campus that included a condition that the proposed future plaza and sculpture shall be reviewed by the Planning and Zoning Commission as a minor site plan. Artwork is reviewed in the same context as sculptures as it directly relates to the use of the property and would be visible from the Lindbergh Boulevard.

Key Issues:

- Does the request integrate with the existing surrounding uses?
- Does the request further or implement the goals of the Comprehensive Plan?
- Is the request consistent with the Design Guidelines?

Creve Coeur 2030 Plan References

- Campus & Institutional Districts
 - Campus (CV) Place Type

Zoning Code References

- Section 405.250 A Single Family Residential
- Section 405.470 Conditional Uses
- Section 405.1080. Site Concept, Site Development and Minor Site Plan Approval.

APPLICANT: Robert Schnur
Director of Finance and Operations
Chaminade College Preparatory School
425 S. Lindbergh Boulevard
St. Louis, Mo 63141

APPLICANT'S REPRESENTATIVE: Edward Griesedieck
EJG Legal Consulting LLC
5 Indian Creek Lane
St. Louis, MO 63131



REPORT PREPARED BY: Whitney Kelly, AICP, City Planner

DATE: 12/12/2018

ATTACHMENTS: Applicant's Materials received October 31, 2018, Example sculpture image received November 6, 2018, Sculpture Base drawing received November 20, 2018, and Rendering received November 26, 2018

PROJECT DESCRIPTION

The proposal includes the placement of a 12 foot tall sculpture called “Christ the Teacher” on top of a 2 ½ to 3 feet tall, limestone stone base similar to the image below:

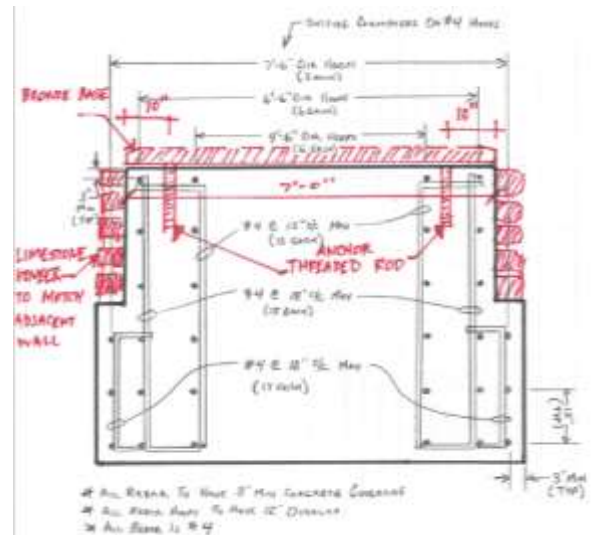


Figure 1: Image of a proposed sculpture Christ the Teacher and the limestone base detail.

The sculpture has not been completed but will be similar to the above. The plaza space for the sculpture will be in front of the School's chapel and will include new walkways and a decorative low knee wall, within an open lawn area.



Figure 2: Applicant's rendering of the Plaza area.



Figure 3: Close-up of the Plaza drawings.

LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

Direction	Use	Zoning District	Separated by
North	Partial Single-family residences; Our Lady of the Pillar Catholic Church	A Single-family Residential	N/A
South	Single-family residences	City of Frontenac zoning	Donoho Place
East	Single-family residences	City of Ladue zoning	Lindbergh Boulevard
West	Single-family residences	A Single-family Residential	N/A

COMPREHENSIVE PLAN REVIEW

The subject property is included as a Campus District within the Campus & Institutional Place Type District that is for the development of large multi-building office structures, institutional facilities, research building, educational, and healthcare facilities, deeply setback from site edges and surrounded by beautiful landscape buffers, that are compatible with the neighboring residential districts with an established “green edge” landscape zone to protect from potential negative impacts of non-residential land uses while allowing flexibility on the interior of the site (p.109-110). A green edge is maintained, and the proposed improvements provide for a pedestrian amenity within the existing space, that will be visible from the Lindbergh Boulevard.

The proposed sculpture, along with the existing sculptures on site, were included in the review of the Master Sign Plan for the Campus. A condition of approval of the Master Sign Plan included that the sculpture and plaza space will need to be reviewed by the Planning and Zoning Commission as a minor site plan amendment, when the proposal was further developed. Therefore, in as much as this request can the proposal meets with the recommendations of the Comprehensive Plan.

Design Guidelines

The City's Design Guidelines also recommend providing plaza spaces, incorporating benches and other site amenities. And that the walls and fences are to be compatible with the architecture of the main building and should use similar materials, and that 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.

The low wall appears to consist of brick to match the existing building and to serve as more of an architectural feature to highlight the sculpture and plaza space. The overall height was not indicated, nor the architectural detail provided, therefore Staff has included a condition of approval that the Applicant shall submit for a building permit for the wall and provide additional detail and that the overall height shall not be more than four feet.

ZONING REVIEW

As the proposed artwork includes sidewalks and a plaza area, both of which do not add to site coverage, zoning review is limited to the sidewalks. Landscaping is not reviewed as they are wishing to keep this as an open lawn area. All of the existing trees in this area will be removed. In earlier renditions the walkways had trees on either side. Staff finds that the area is stark and that additional landscaping is needed to soften the elements and to create a more inviting space. If the Commission wishes to see additional landscaping to break up with low architectural wall and trees along with walkway, they will need to discuss options with the Applicant, and a condition will need to be included within the motion.

Sidewalk

The proposal includes new walkways to and around the sculpture. The drawings indicate that these walkways will tie into the existing that are surrounding the lawn area, however they are at 5 feet in width. Section 405.730 Sidewalks requires that the minimum width of internal sidewalks in non-residential developments shall be at least six (6) feet or eight (8) feet if used as a curb stop. Therefore, Staff has included a condition of approval that the walkways to and around the sculpture shall be a minimum of 6 feet in width.

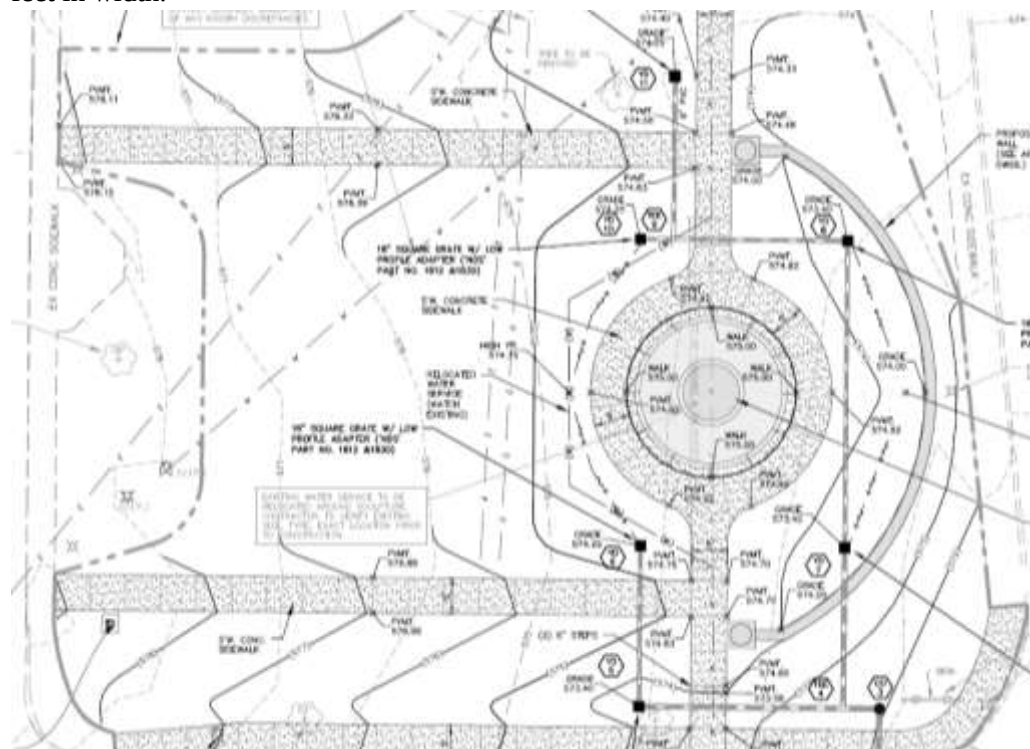


Figure 4: Close-up of the Plaza area with the new sidewalks/walkways to and around the sculpture.

Based on the above analysis, the request for the minor Site Plan meets all of the requirements of the Comprehensive Plan and Zoning Ordinances with the minor exceptions discussed above. Staff recommends the following conditions be incorporated in any motion for the Site Development Plan:

1. The Applicant is required to submit a Building Permit application, as required by Article II of the Building Code for the sculpture, base, and architectural wall received October 31, 2018 and detail submitted via email on November 20, 2018, as bound together and submitted in conjunction with Application #18-047 by EJG Legal Consulting, LLC.
2. The Applicant is required to submit a Site Improvement Permit application, showing all exterior improvements, as required by Section 420.070 of the Land Disturbance Code. The permit application shall be in substantial conformance with the "Site Development Plan" received October 31, 2018 as bound together and submitted in conjunction with Application #18-047 by EJG Legal Consulting, LLC, and as amended below.
3. The sidewalks and walkways shall be a minimum of 6 feet in width in compliance with Section 405.730 Sidewalks.
4. The architectural wall shall be a maximum height of four feet, and design detail shall be submitted with the building permit for the Zoning Administrator's approval.
5. An underground irrigation system shall be installed as required under Section 405.540(10). All landscaping shall be maintained per the approved Landscape Plan and any vegetation that is totally or predominantly dead and/or disfigured due to disease or injury shall be replaced as needed and in a prompt and workmanlike manner as dictated by accepted horticultural standards.
6. All lighting shall be in conformance with Section 405.680, Lighting, of the Zoning Code, and Section 205.810 of the Parking Ordinance.
7. No site development plan or minor site plan approval shall be valid for a period longer than twelve (12) months from the date it is approved, unless within such period a building permit is obtained and substantial construction is commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission and the City Council, when required, may grant extensions not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission and the Council, as applicable, have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. Where the application for re-approval contains changes which the Zoning Administrator concludes materially alter the initial application, the Zoning Administrator shall initiate a new site development plan review procedure as stated in Section 405.1080 or a new minor site plan review procedure as stated in Section 405.1080.

MOTION

The motion to approve the minor site plans as shown in the Applicant's materials will be in the form of approval, approval with conditions, denial or deferral. City Council action is not required for minor site development plans. The following is an example of an appropriate motion for this proposal:

"I move to recommend approval of the minor site plan for sculpture and plaza area for Chaminade College Preparatory School as bound together with Application #18-047, as presented to the Planning and Zoning Commission, subject to the conditions contained in the staff report for the meeting of December 17, 2018" (conditions may be added, eliminated, or modified by preceding motion).

APPENDIX 1: COMPREHENSIVE PLAN, INCLUDING DESIGN GUIDELINES

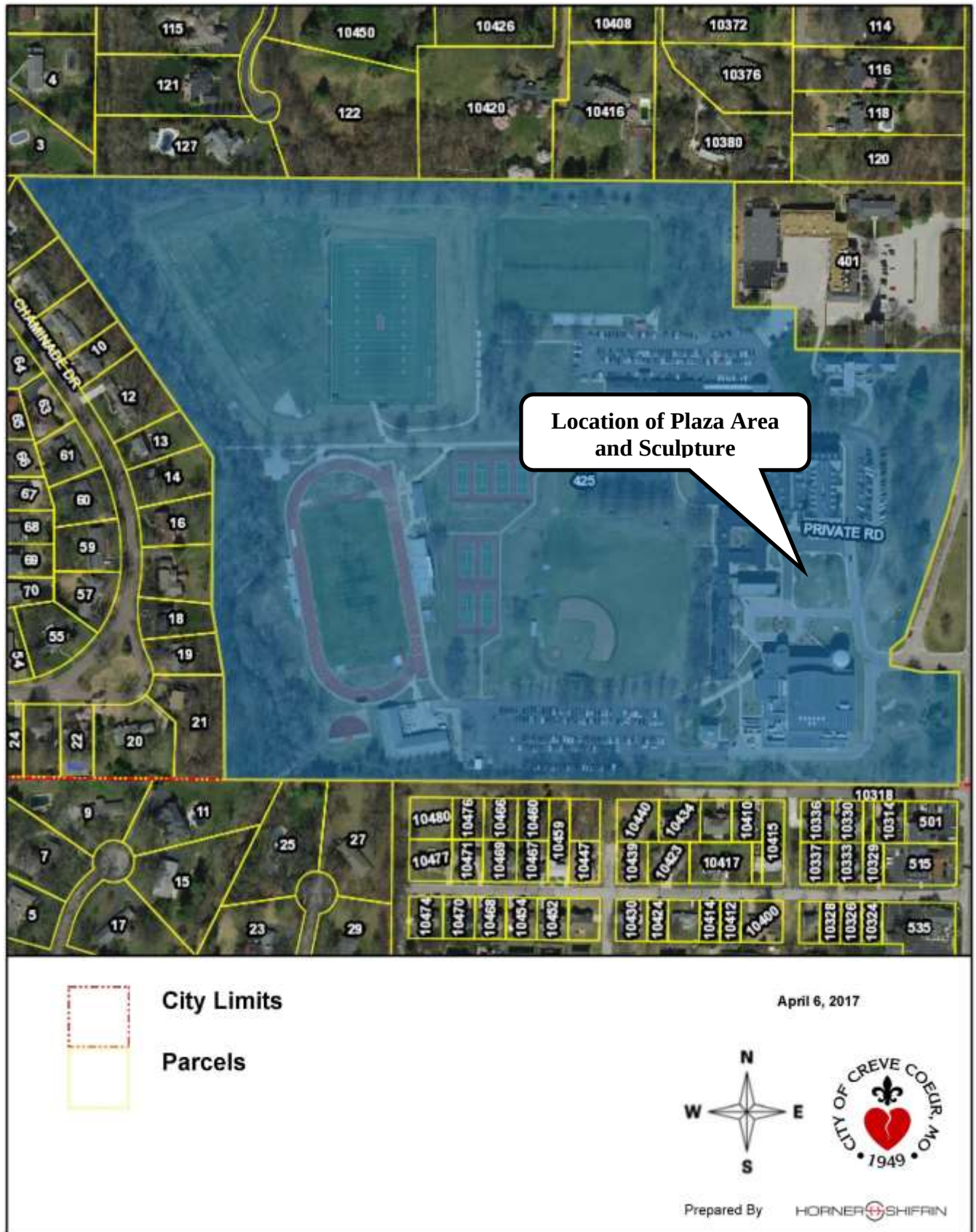
Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

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

APPENDIX 3: AERIAL PHOTO

Chaminade College Preparatory School



APPENDIX 4: SITE PHOTOGRAPHS		Photo Dates: 12/12/2018
		Description: View of the proposed plaza area looking west from the access drive
		Description: View of the proposed plaza area looking southwest from the access drive with the Fine Arts Building on the left.
		Description: View of the plaza area looking northwest from the access drive.

PERTINENT DATA:

GAS	LACLEDE GAS COMPANY 720 OLIVE STREET ST. LOUIS, MO 63101 (314) 642-0688	TELEPHONE	AT&T 13075 MANCHESTER ROAD DES PARES, MO 63131 (636) 949-1328
SEWER	METROPOLITAN ST. LOUIS SEWER DIST. 2350 MARKET STREET ST. LOUIS, MO 63103 (314) 768-6272	WATER	MISSOURI AMERICAN WATER COMPANY 535 NORTH NEW BALLAS ROAD ST. LOUIS, MO 63141 (314) 991-3404
ELECTRIC	AMEREN UE 280 OLD STATE ROAD ELLISVILLE, MO 63021 (314) 992-8922	FIRE DIST.	CREVE COEUR FIRE PROTECTION DISTRICT 11221 OLIVE BLVD. CREVE COEUR, MO 63141 (314) 432-5570

SITE INFORMATION

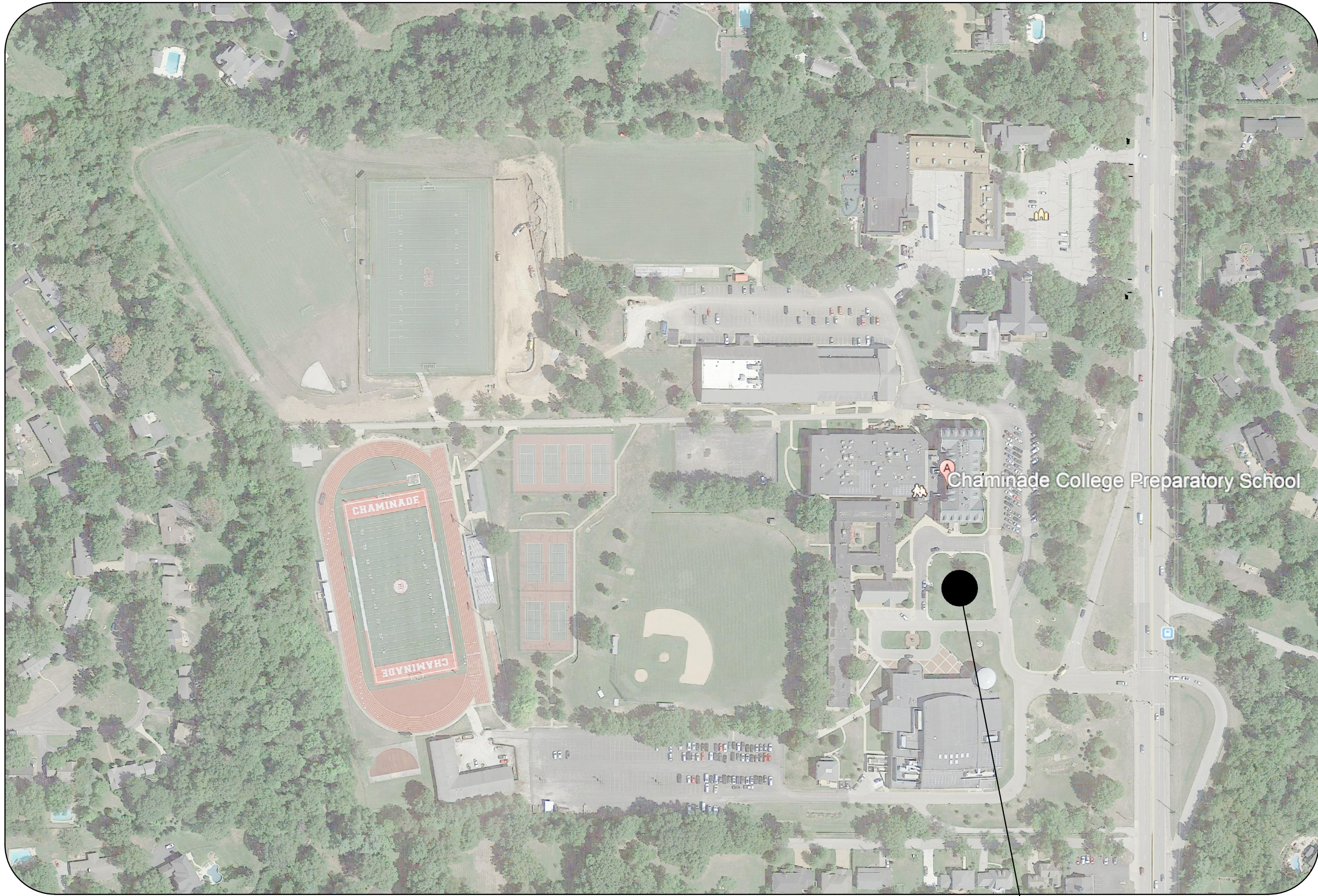
LOCATOR NUMBER:	18M110124
EXISTING ZONING:	MUNICIPAL
GROSS AREA OF SITE:	57.12 ACRES
WATERSHED:	DEER CREEK

PROJECT BENCHMARK

ST. LOUIS COUNTY BENCHMARK #13020 ELEVATION=577.16' (NGVD 29)

"SQ" ON NORTH END OF LOWEST GRANITE STEP AT FLIGHT OF 14 STEPS TO EAST AT FRONT ENTRANCE OF CHAMINADE DAY SCHOOL ON WEST SIDE OF LINDBERGH BOULEVARD NORTH OF DONOHO PLACE; 300' WEST OF LINDBERGH BOULEVARD AND 175' NORTH OF CLERBROOK LAND EXTENDED.

Christ the Teacher Sculpture
Chaminade College Preparatory School
LOT A OF A BOUNDARY ADJUSTMENT PLAT OF TWO TRACTS OF LAND IN THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 45 NORTH, RANGE 5 EAST OF THE FIFTH PRINCIPAL MERIDIAN, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI



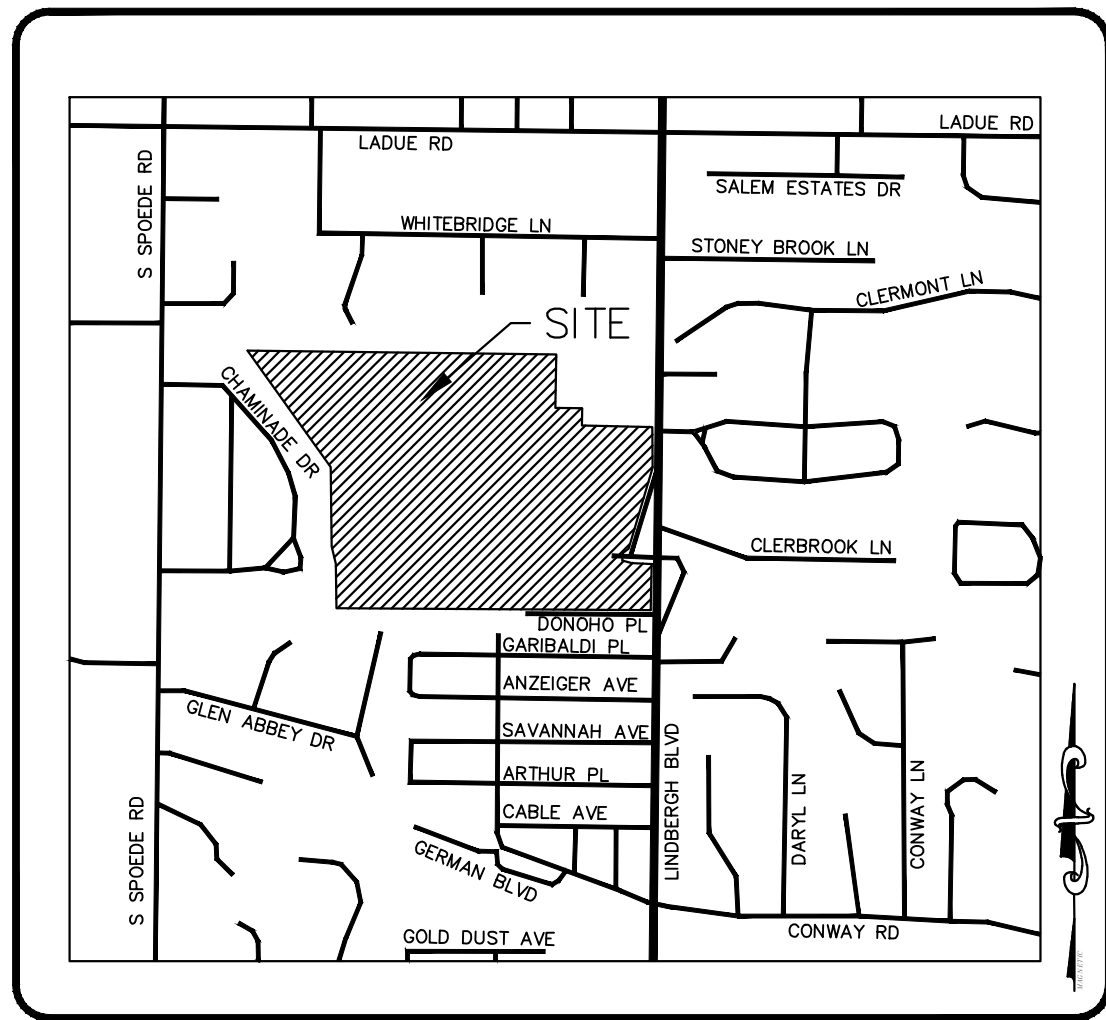
KEY MAP
N.T.S.

AREA OF
IMPROVEMENT

SITE ADDRESS - 425 SOUTH LINDBERGH BLVD
CREVE COEUR, MO
PROJECT ZIP CODE - 63131
LOCATOR # 18M110124

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EXISTING CONDITIONS & DEMOLITION PLAN
OVERALL PLAN
GRADING PLAN
SWPPP (STORM WATER POLLUTION PREVENTION PLAN)
SWPPP NOTES
SWPPP DETAILS
STORM SEWER PROFILES & HYDRAULICS
EXISTING DRAINAGE AREA PLAN
PROPOSED DRAINAGE AREA PLAN
BMP DRAINAGE AREA PLAN
DETAILS



LOCATION MAP
N.T.S.

EXISTING	LEGEND	PROPOSED
542	CONTOURS	(542)
X 536	SPOT ELEVATIONS	XXX.X
	CENTER LINE	
	BUILDINGS, ETC.	
	TREE LINE	
X X	FENCE	x x
	SILTATION CONTROL FENCE	X X X
	STORM SEWERS	
	SANITARY SEWERS	
EX AI	CATCH BASIN	N NO
EX BI	AREA INLET	N NO
EX BO	GRATED INLET	BO NO
EX MI	DOUBLE CURB INLET	MI NO
EX FE	STORM MANHOLE	MI NO
EX FE	SANITARY MANHOLE	MI NO
CO	FLARED END SECTION	CO NO
	CLEANOUT	CO
	LATERAL CONNECTION	LT
	UTILITY OR POWER POLE	
	FIRE HYDRANT	
	TEST HOLE	
	PAVEMENT	
12" G	GAS MAIN & SIZE	(G) (G)
12" W	WATER MAIN & SIZE	(W) (W)
T T	TELEPHONE	(T) (T)
UE UE	ELECTRIC (U) UNDERGROUND	(UE) (UE)
OHE OHE	ELECTRIC (O) OVERHEAD	(OHE) (OHE)
FO FO	FIBER OPTIC	(FO) (FO)
EL	FLOW LINE	EL
	TO BE REMOVED	TBR
	TO BE REMOVED & RELOCATED/REPLACED	TBRR
TC	TOP OF CURB	(TC)
	SWALE	
	LIGHT STANDARD	
	STREET SIGN	
P.S. BLK X	PARKING STALLS	P.S.
	YARD LIGHT	

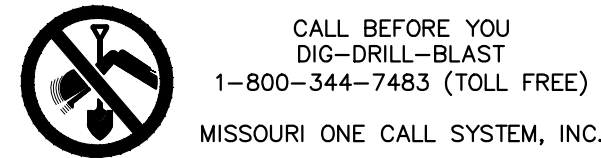
PROPERTY DESCRIPTION (LOT A):

A TRACT OF LAND BEING PART OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 45 NORTH, RANGE 5 EAST OF THE FIFTH PRINCIPAL MERIDIAN, CITY OF CREVE COEUR, ST. LOUIS COUNTY, MISSOURI, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A FOUND IRON PIPE AT THE NORTHWEST CORNER OF A TRACT OF LAND CONVEYED TO CHAMINADE COLLEGE PREPARATORY SCHOOL, INC. BY DEED RECORDED IN DEED BOOK 7443, PAGE 1165 OF THE ST. LOUIS COUNTY, MISSOURI, RECORDS; THENCE ALONG THE NORTH LINE OF SAID CHAMINADE TRACT, SOUTH 89° 30' 00" EAST, 1728.17 FEET TO THE NORTHWEST CORNER OF A TRACT OF LAND CONVEYED TO ST. LOUIS COUNTY CATHOLIC CHURCH REAL ESTATE CORPORATION BY DEED RECORDED IN DEED BOOK 17765, PAGE 4123 (PARCEL 1) OF SAID ST. LOUIS COUNTY, MISSOURI, RECORDS; FROM WHICH A FOUND IRON PIPE BEARS 2.28 FEET WEST; THENCE ALONG THE WEST LINE OF SAID ST. LOUIS COUNTY CATHOLIC CHURCH REAL ESTATE CORPORATION TRACT THE FOLLOWING COURSES AND DISTANCES: SOUTH 00° 36' 50" WEST, 300.00 FEET TO A POINT FROM WHICH A FOUND IRON PIPE BEARS SOUTH 68° 58' 50" WEST, 0.17 FEET; SOUTH 89° 30' 00" EAST, 150.00 FEET AND SOUTH 00° 36' 50" WEST, 100.00 FEET TO A FOUND IRON PIPE AT THE SOUTHWEST CORNER OF SAID ST. LOUIS COUNTY CATHOLIC CHURCH REAL ESTATE CORPORATION TRACT; THENCE ALONG THE SOUTH PROLOGATION OF LAST SAID WEST LINE, SOUTH 00° 36' 50" WEST, 125.00 FEET; THENCE SOUTH 89° 30' 00" EAST, 247.50 FEET; THENCE NORTH 00° 36' 50" EAST, 125.00 FEET TO A POINT ON THE SOUTH LINE OF SAID ST. LOUIS COUNTY CATHOLIC CHURCH REAL ESTATE CORPORATION TRACT; THENCE ALONG LAST SAID SOUTH LINE, SOUTH 89° 30' 00" EAST, 152.50 FEET TO A POINT ON THE WEST LINE OF SOUTH LINDBERGH BOULEVARD, 100 FEET WIDE; THENCE ALONG LAST SAID WEST LINE THE FOLLOWING COURSES AND DISTANCES: SOUTH 00° 36' 50" WEST, 261.18 FEET TO A POINT FOR WHICH A FOUND RIGHT-OF-WAY MARKER BEARS NORTH 24° 12' 06" EAST, 5.42 FEET; SOUTH 14° 06' 35" WEST, 128.55 FEET TO A POINT FROM WHICH A FOUND IRON PIPE BEARS NORTH 19° 02' 56" EAST, 0.21 FEET; SOUTH 19° 02' 56" WEST, 316.23 FEET TO A FOUND CONCRETE MONUMENT; SOUTH 50° 00' 45" WEST, 46.10 FEET TO POINT FROM WHICH A FOUND IRON PIPE (LS 19-D) BEARS NORTH 66° 59' 26" WEST, 0.31 FEET; SOUTH 00° 36' 50" WEST, 40.00 FEET TO A POINT FROM WHICH A FOUND IRON ROD WITH ALUMINUM CAP (MCOOT) BEARS 0.40 FEET WEST; SOUTH 89° 23' 10" EAST, 165.00 FEET AND SOUTH 00° 36' 50" WEST, 283.57 FEET TO THE SOUTHEAST CORNER OF SAID CHAMINADE TRACT, SAID POINT ALSO BEING AT THE POINT OF INTERSECTION OF SAID WEST LINE OF SOUTH LINDBERGH BOULEVARD AND THE NORTH LINE OF DONOHO PLACE, 40 FEET WIDE, A PAPER STREET; THENCE ALONG THE SOUTH LINE OF SAID CHAMINADE TRACT, NORTH 89° 29' 57" WEST, 427.05 FEET AND NORTH 89° 29' 57" WEST, 1341.49 FEET TO A FOUND IRON PIPE AT THE SOUTHWEST CORNER OF SAID CHAMINADE TRACT; THENCE ALONG THE WEST LINE OF SAID CHAMINADE TRACT, NORTH 00° 26' 00" EAST, 242.56 FEET TO THE SOUTHEAST CORNER OF LOT 19 OF CHAMINADE PARK, A SUBDIVISION RECORDED IN PLAT BOOK 34, PAGE 59 OF SAID ST. LOUIS COUNTY, MISSOURI RECORDS, FROM WHICH A FOUND BENT IRON PIPE BEARS SOUTH 56° 02' 30" EAST, 0.15 FEET; THENCE CONTINUING ALONG SAID WEST LINE, ALSO BEING THE EAST LINE OF SAID CHAMINADE PARK, THE FOLLOWING COURSES AND DISTANCES: NORTH 09° 34' 00" WEST, 172.64 FEET TO A POINT FROM WHICH A FOUND IRON ROD BEARS NORTH 84° 57' 05" WEST, 0.51 FEET; NORTH 00° 26' 00" EAST, 359.99 FEET TO A POINT FROM WHICH A FOUND IRON PIPE BEARS NORTH 35° 31' 01" EAST, 0.26 FEET AND NORTH 35° 00' 00" WEST, 819.51 FEET TO THE NORTHWEST CORNER OF SAID CHAMINADE PARK, SAID POINT ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED, AND CONTAINING 2,468.475 SQUARE FEET OR 56.6683 ACRES, MORE OR LESS, ACCORDING TO A SURVEY PERFORMED BY THE STERLING COMPANY DURING FEBRUARY, 2016 UNDER ORDER NO. 15-11-347.

CONTRACTOR'S INSURANCE REQUIREMENTS

PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE DISTRICT WITH A COPY OF AN EXECUTED CERTIFICATE OF INSURANCE INDICATING THAT THE PERMITTEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE "RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITY", SECTION 10.090 (ADDENDUM).



THE UTILITIES AS SHOWN ON THIS SET OF DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THE INFORMATION PROVIDED IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.

THE UNDERGROUND UTILITIES SHOWN HEREON 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 SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

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COVER SHEET



Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	1.1
Checked: SA	IMP

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

GENERAL NOTES:

1. ALL CONSTRUCTION METHODS, MATERIALS AND PRACTICES SHALL CONFORM TO ALL CURRENT APPLICABLE SPECIFICATIONS OF THE GOVERNING AGENCIES.
2. ANY DESTRUCTION OF EXISTING IMPROVEMENTS OR FEATURES SHALL BE REPAIRED OR REPLACED IN KIND BY THE CONTRACTOR AND SHALL REMAIN THE CONTRACTORS RESPONSIBILITY.
3. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO GRADING OR CONSTRUCTION OF IMPROVEMENTS.
4. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM SUCH WORK.
5. CONTRACTOR SHALL KEEP ALL STREETS CLEAR OF MUD AND DEBRIS.
6. ALL FILL AREAS TO BE COMPACTED TO A MINIMUM OF 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED AASHTO COMPACTING TEST, ASTM D1557-78, OR AS SPECIFIED BY THE SOILS ENGINEER.
7. IT SHALL BE THE GRADING CONTRACTORS RESPONSIBILITY TO NOTIFY THE SOILS ENGINEER PRIOR TO WORK IN PROGRESS AND TO COMPLY WITH RECOMMENDATIONS BY THE SOILS ENGINEER WITH REGARDS TO COMPACTION, SURFACE PREPARATION, AND PLACEMENT OF FILL.
8. IT SHALL BE THE GRADING CONTRACTORS RESPONSIBILITY TO VERIFY THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES BY NOTIFYING UTILITY COMPANIES PRIOR TO GRADING OPERATIONS.
9. ALL DRAINAGE SWALES SHALL BE SODDED OR SEEDED AND MULCHED TO PREVENT EROSION.
10. ALL STUMPS, LIMBS, AND OTHER DEBRIS ARE TO BE REMOVED FROM THE SITE.
11. IF FILL IS TO BE PLACED IN AREAS OF SOFT SOIL, PARTICULARLY IN DRAWS, DRAINAGE CHANNELS AND OTHER LOW LYING AREAS, THE SOFT SOIL SHALL BE EXCAVATED UNTIL FIRM SOIL IS ENCOUNTERED OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
12. ALL GRADING SHALL COMPLY WITH THE SOILS ENGINEER'S RECOMMENDATIONS.
13. STABILIZATION IS REQUIRED FOR AREAS WHERE GRADING IS COMPLETED OR A 30 DAY SUSPENSION OF ANY SITE GRADING WILL BE IMPOSED.
14. PERIMETER SILTATION CONTROL WILL BE INSTALLED PRIOR TO ANY GRADING OR CONSTRUCTION OPERATIONS AND SHALL BE INSPECTED AND MAINTAINED AS NECESSARY TO INSURE ITS PROPER FUNCTION UNTIL SUFFICIENT VEGETATION HAS BEEN ESTABLISHED TO PREVENT EROSION.
15. THE INSTALLATION AND MAINTENANCE OF ALL SILTATION CONTROLS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
16. ADDITIONAL SILTATION CONTROL MAY BE REQUIRED AS DIRECTED BY THE CITY OF CREVE COEUR.
17. ALL GRADING AREA SHALL BE PROTECTED FROM EROSION BY EROSION CONTROL DEVICES AND/OR SEEDING AND MULCHING AS REQUIRED BY THE CITY OF CREVE COEUR.
18. EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS UNTIL SUFFICIENT VEGETATION HAS BEEN ESTABLISHED TO PREVENT EROSION.
19. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR CONTROLLING ALL SILTATION AND EROSION OF THE PROJECT AREA.
20. ALL EROSION CONTROL SYSTEMS SHALL BE INSPECTED AND NECESSARY CORRECTIONS MADE WITHIN 48 HOURS AFTER A RAINFALL THAT CAUSES STORM WATER RUNOFF TO OCCUR ON-SITE.
21. EROSION CONTROL SHALL NOT BE LIMITED TO WHAT IS SHOWN ON THE PLAN. WHATEVER MEANS NECESSARY SHALL BE TAKEN TO PREVENT SILTATION AND EROSION FROM ENTERING NATURAL STREAMS, ADJACENT ROADWAYS, PROPERTIES, DITCHES, AND STORM DRAINAGE SYSTEMS (BOTH ON AND OFFSITE).
22. MAXIMUM SLOPE INCLINATION TO BE 3 (HORIZ.) TO 1 (VERT.) UNLESS SUPPORTED BY A GEOTECHNICAL REPORT. THE GEOTECHNICAL REPORT SHALL BE ACCEPTED/APPROVED BY THE CITY.
23. ALL FILLED PLACES UNDER PROPOSED STORM AND SANITARY SEWER AND/OR PAVED AREAS SHALL BE COMPACTED FROM THE BOTTOM OF THE FILL UP TO 90 BY THE MODIFIED AASHTO T-180 COMPACTION TEST OR 95 DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. A SOILS ENGINEER CONCURRENT WITH THE GRADING AND BACK FILLING OPERATIONS SHALL VERIFY ALL TESTS.
24. WHEN DEEMED NECESSARY, POSITIVE STEPS SHOULD BE EXERCISED TO PREVENT THE SOIL FROM DAMAGING ADJACENT PROPERTY AND SILTING UP STORM DRAINAGE SYSTEMS WHETHER ON OR OFF SITE.
25. ALL LOW PLACES WHETHER ON-SITE OR OFF-SITE SHOULD BE GRADED TO ALLOW DRAINAGE BY INSTALLING TEMPORARY DITCHES.
26. ANY WELLS AND/OR SPRINGS WHICH MAY EXIST ON THIS PROPERTY SHOULD BE LOCATED AND SEALED IN A MANNER ACCEPTABLE TO THE CITY OF CREVE COEUR.
27. ALL TRASH AND DEBRIS ON-SITE, EITHER EXISTING OR FROM CONSTRUCTION, MUST BE REMOVED AND DISPOSED OF OFF-SITE.
28. DEBRIS AND FOUNDATION MATERIAL FROM ANY EXISTING ON-SITE BUILDING OR STRUCTURE WHICH IS SCHEDULED TO BE RAZED FOR THIS DEVELOPMENT CAN BE RUBBLIZED AND USED AS FILL IN CERTAIN AREAS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
29. SOFT SOILS IN THE BOTTOM AND BANKS OF ANY EXISTING OR FORMER POND SITES OR TRIBUTARIES SHOULD BE REMOVED, SPREAD OUT AND PERMITTED TO DRY SUFFICIENTLY TO BE USED AS FILL. NONE OF THIS MATERIAL SHOULD BE PLACED IN PROPOSED PUBLIC RIGHT-OF-WAY LOCATIONS OR ON ANY STORM SEWER LOCATION.
30. ALL COMPACTED FILL SHALL BE ENGINEERED, MONITORED, AND CERTIFIED BY AN ENGINEER. A COPY OF SUCH CERTIFICATION BEARING THE ENGINEER'S SEAL SHALL BE PROVIDED TO THE CITY.
32. ALL CONSTRUCTION SHALL BE PER THE MOST CURRENT DETAILS LOCATED WITHIN THE ST. LOUIS COUNTY DESIGN CRITERIA MANUAL AND/OR THE SEDIMENT AND EROSION CONTROL MANUAL. THE MANUALS CAN BE LOCATED ONLINE @ <http://www.stlouisco.com/hwyweb/publications.cfm>
33. THE DEVELOPER IS ADVISED THAT UTILITY COMPANIES WILL REQUIRE COMPENSATION FOR RELOCATION OF THEIR UTILITY FACILITIES WITHIN THE PUBLIC ROAD RIGHT-OF-WAY. THE CITY OF CREVE COEUR SHALL BEAR NO RESPONSIBILITY FOR UTILITY RELOCATION OR ADJUSTMENT COSTS OR ASSOCIATED DELAYS. UTILITY RELOCATION COST SHALL BE CONSIDERED THE DEVELOPER'S RESPONSIBILITY. THE DEVELOPER SHOULD ALSO BE AWARE OF EXTENSIVE DELAYS IN UTILITY COMPANY RELOCATION AND ADJUSTMENTS. SUCH DELAYS WILL NOT CONSTITUTE A CAUSE TO ALLOW OCCUPANCY PRIOR TO COMPLETION OF ROAD IMPROVEMENTS.
34. PROVIDE ADEQUATE OFF-STREET PARKING FOR CONSTRUCTION EMPLOYEES. PARKING ON NON-SURFACED AREAS SHALL BE PROHIBITED IN ORDER TO ELIMINATE THE CONDITION WHEREBY MUD FROM CONSTRUCTION AND EMPLOYEE VEHICLES IS TRACKED ONTO THE PAVEMENT CAUSING HAZARDOUS ROADWAY AND DRIVEWAY CONDITIONS.
35. ANY DISTURBED OFFSITE PROPERTY (I.E. BUSHES, FENCES, MAILBOXES, ETC.) SHALL BE REPLACED, IN KIND, AT THE DEVELOPERS EXPENSE.
36. TREES AND/OR SHRUBS SHALL NOT BE REMOVED OR DISTURBED WITHIN CITY OF CREVE COEUR RIGHT-OF-WAY WITHOUT PRIOR APPROVAL OF THE CITY.
37. INTERIM STORM WATER DRAINAGE CONTROL IN THE FORM OF SILTATION CONTROL MEASURES ARE REQUIRED.
38. ALL AFFECTED OFFSITE PROPERTY OWNERS SHALL BE GIVEN NOTICE 48 HOURS IN ADVANCE OF ANY WORK.
39. THE CONTRACTOR SHALL MAINTAIN EXISTING TRAFFIC CONTROL SIGNS (STREET NAME, STOP, NO PARKING, ONE-WAY, TURN, ETC.) UNTIL SUCH TIME AS THEY NEED TO BE REMOVED/RELOCATED FOR CONSTRUCTION OPERATIONS. TEMPORARY SIGNING SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF MUTCD CHAPTER 6F (TEMPORARY TRAFFIC CONTROL ZONE DEVICES). EXISTING SIGNS SHALL NOT LIE ON THE GROUND FOR ANY PERIOD OF TIME. PORTABLE SUPPORTS SHALL NOT BE LOCATED ON SIDEWALKS OR AREAS DESIGNATED FOR PEDESTRIAN TRAFFIC. SIGNS SHALL BE CRASHWORTHY AND PROPERLY MAINTAINED FOR CLEANLINESS, VISIBILITY, AND PROPER POSITIONING, AND SHALL BE COORDINATED WITH THE CITY OF CREVE COEUR.
40. REMOVE AND REPLACE PAVEMENT, SIDEWALK, CURB, ETC. TO THE NEXT JOINT.
41. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHEREVER POSSIBLE.

SEWER CONSTRUCTION NOTES:

1. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF IMPROVEMENTS.
2. GAS, WATER AND OTHER UNDERGROUND UTILITIES SHALL NOT CONFLICT WITH THE DEPTH OR HORIZONTAL LOCATION OF EXISTING OR PROPOSED SANITARY AND STORM SEWERS, INCLUDING HOUSE LATERALS.
3. ALL EXISTING SITE IMPROVEMENTS DISTURBED, DAMAGED OR DESTROYED SHALL BE REPAIRED OR REPLACED TO CLOSELY MATCH PRE-CONSTRUCTION CONDITIONS.
4. TRENCHES UNDER EXISTING PAVEMENT AND UNDER AREAS TO BE PAVED SHALL BE BACKFILLED WITH 3/4" MINUS CRUSHED LIMESTONE.
5. THE CONTRACTOR SHALL PREVENT ALL STORM, SURFACE WATER, MUD AND CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER SYSTEM.
6. ALL SANITARY SEWER FLOWLINES AND TOPS BUILT WITHOUT ELEVATIONS FURNISHED BY THE ENGINEER WILL BE THE RESPONSIBILITY OF THE SEWER CONTRACTOR.
7. EASEMENTS SHALL BE PROVIDED FOR ALL SANITARY SEWERS, STORM SEWERS AND ALL UTILITIES ON THE RECORD PLAT.
8. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS OF ST. LOUIS COUNTY HIGHWAYS AND TRAFFIC AND METROPOLITAN SAINT LOUIS SEWER DISTRICT.
9. ALL STANDARD STREET CURB INLETS TO HAVE FACE OF INLET 3.0' BEHIND CURB. ALL AREA INLETS OPEN 4 SIDES UNLESS NOTED OTHERWISE.
10. ALL SANITARY SEWER BUILDING CONNECTIONS SHALL BE DESIGNED SO THAT THE MINIMUM VERTICAL DISTANCE FROM THE LOW FLOOR SHALL NOT BE LESS THAN THE DIAMETER OF THE PIPE PLUS THE VERTICAL DISTANCE OF 2 1/2 FEET.
11. MSD & THE CITY SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION FOR COORDINATION OF INSPECTION.
12. ALL SANITARY SEWER MANHOLES SHALL BE WATERPROOFED ON THE EXTERIOR IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATION 10 CSR-8.120(7)(E).
13. ALL PVC SANITARY SEWER PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-3034 STANDARD SPECIFICATION FOR PSM POLYVINYL CHLORIDE SEWER PIPE, SDR-35 OR EQUAL, WITH "CLEAN" 1/2 INCH TO 1 INCH GRANULAR STONE BEDDING UNIFORMLY GRADED. THIS BEDDING SHALL EXTEND FROM 4 INCHES BELOW THE PIPE TO SPRINGLINE OF PIPE. IMMEDIATE BACKFILL OVER PIPE SHALL CONSIST OF SAME SIZE "CLEAN" OR "MINUS" STONE FROM SPRINGLINE OF PIPE TO 6 INCHES ABOVE THE TOP OF PIPE.
14. DRAINAGE PIPE SHALL BE REINFORCED CONCRETE CLASS III EXCEPT AS NOTED ON PLANS. INSTALLATION SHALL CONFORM TO M.S.D. STANDARDS AND SPECIFICATIONS.
15. JOINTING MATERIAL FOR POLY VINYL CHLORIDE (PVC) SANITARY SEWERS SHALL CONFORM TO ASTM SPECIFICATION D-3212. ALL POLY VINYL CHLORIDE (PVC) PIPE SHALL CONFORM TO ASTM D-3034, TYPE PSM WITH A SDR RATING OF 35, OR LOWER.
16. MANHOLE FRAMES AND COVERS SHALL BE STANDARD FRAMES AND COVERS AS APPROVED BY THE GOVERNING AUTHORITY.
17. WHEN P.V.C. PIPE IS USED, APPROPRIATE RUBBER SEAL WATERSTOP, AS APPROVED BY THE SEWER DISTRICT, SHALL BE INSTALLED BETWEEN P.V.C. PIPE AND MASONRY (CONCRETE & BRICK) STRUCTURE.
18. GRANULAR BACKFILL WILL BE USED UNDER PAVEMENT.
19. ALL PIPES SHALL HAVE POSITIVE DRAINAGE THROUGH MANHOLES. NO FLAT INVERT STRUCTURES ARE ALLOWED.
20. BRICK SHALL NOT BE USED ON SANITARY SEWER MANHOLES.
21. EXISTING SANITARY SEWER SERVICE SHALL NOT BE INTERRUPTED.
22. PRE-MANUFACTURED ADAPTERS SHALL BE USED AT ALL PVC TO DIP CONNECTIONS. RUBBER BOOT/MISSION-TYPE COUPLINGS WILL NOT BE ALLOWED.
23. ANY PERMITS, LICENSES, EASEMENTS, OR APPROVALS REQUIRED TO WORK ON PUBLIC OR PRIVATE PROPERTIES OR ROADWAYS ARE THE RESPONSIBILITY OF THE DEVELOPER.
24. SHOP DRAWINGS ARE REQUIRED FOR CONSTRUCTION OF NONSTANDARD REINFORCED CONCRETE STRUCTURES.
25. MAINTENANCE OF THE SEWERS DESIGNATED AS "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN SAINT LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.
26. ALL STORM WATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT ADEQUATE DISCHARGE POINTS.
27. INTERIM STORM WATER DRAINAGE CONTROL IN THE FORM OF SILTATION CONTROL MEASURES ARE REQUIRED.
28. THE DEVELOPER IS REQUIRED TO PROVIDE ADEQUATE STORM WATER SYSTEMS IN ACCORDANCE WITH THE CITY OF CREVE COEUR AND MSD STANDARDS.
29. WHEN NECESSARY, SEPTIC TANKS SHALL BE ABANDONED IN ACCORDANCE WITH METROPOLITAN ST. LOUIS SEWER DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWER AND DRAINAGE FACILITIES, 2009 AND ST. LOUIS COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AS REQUIRED.
30. SOILS ENGINEER WILL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO FILL PLACEMENT AND THAT ALL FILL, UNDER SANITARY AND STORM SEWER LINES CONSTRUCTED ABOVE ORIGINAL GRADE, HAS BEEN COMPACTED TO 90% OF "MODIFIED PROCTOR". FILL IS TO BE PLACED IN A MAXIMUM OF 9-INCH LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF 50-FOOT INTERVALS ALONG THE ROUTE OF THE PIPE, AT A MAXIMUM OF 2- FEET VERTICALLY; AND Laterally ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO MSD PRIOR TO CONSTRUCTION APPROVAL.
32. A SIX FOOT (6') DIAMETER FLAT AREA SHALL BE PROVIDED AROUND ALL STORM AND SANITARY MANHOLE OPENINGS.
35. 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-20946-07).
36. CONTRACTOR TO PROVIDE SIGNED AND SEALED SHOP DRAWINGS TO BE APPROVED BY THE PROJECT ENGINEER AND MSD. CONTACT MSD AT 314-335-2072.
37. PIPE JOINTS WITH ADAPTERS AND COUPLINGS SHALL BE SUPPLIED AND INSTALLED WITH 316 STAINLESS STEEL NUT AND BOLT CLAMPS (T-BOLT) CONFIGURATION; AND WITH STAINLESS STEEL SHEAR BANDS, BEING A MINIMUM OF TWELVE (12) MILS (MSD STD. CONST. SPECIF. PT. 2, SUBSECTION H-11). WORM DRIVE AND CONCRETE BACKFILLING (CAUSTICITY) WILL NO LONGER BE ALLOWED AT THOSE JOINTS. GRANULAR BACKFILL SHOULD BE USED. IF FLOWABLE FILL IS REQUIRED, THE CONTRACTOR SHALL WRAP AND TAPE THE ADAPTERS AND COUPLINGS WITH A SIX (6)-MIL POLYETHYLENE SHEET.

PIPE TBA/TBR:

ANY ABANDONED SEWERS SHALL BE REMOVED OR COMPLETELY GROUT FILLED. MSD PERMITS ARE REQUIRED PRIOR TO THE ABANDONMENT OR REMOVAL OF EXISTING SEWERS. TO RECEIVE MSD PERMITS THE PROJECT MUST HAVE MSD PLAN APPROVAL. NOTIFY MSD 48 HOURS PRIOR TO SEWER ABANDONMENT AND/OR REMOVAL.

REMOVE, REPLACE, OR REHABILITATE STRUCTURE (TBR&R):

THE REMOVAL AND REPLACEMENT, OR REHABILITATION OF THE EXISTING STRUCTURE(S) WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, THEN THE TOP SHALL BE ADJUSTED TO GRADE, IF NEEDED.

PARTIAL REMOVAL OR CONVERSION OF A STRUCTURE:

THE PARTIAL REMOVAL, REPLACEMENT, AND CONVERSION OF THE EXISTING STRUCTURE(S) WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, AND THE TOP SECTION CAN BE CONVERTED AS PROPOSED, AND STILL MEET MSD STANDARDS THEN CONVERT AND ADJUST TO GRADE. OTHERWISE THE ENTIRE STRUCTURE WILL BE REMOVED AND REPLACED WITH A NEW STRUCTURE.

FLOW SPLITTER STRUCTURE:

CONTRACTOR MUST VERIFY THE DIMENSIONS BETWEEN THE LOW FLOW PIPE AND THE OVERFLOW PIPE PRIOR TO BACKFILL OF THE STRUCTURE AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCY WITH THE DIMENSIONS ON THE APPROVED PLANS. STRUCTURES BUILT INCORRECTLY WILL REQUIRE REMOVAL AND REPLACEMENT.

CONSTRUCTION SITE RUNOFF:

TO PREVENT SEDIMENT FROM CLOGGING THE BMP CONSTRUCTION SITE RUNOFF SHALL NOT FLOW INTO BMP AREAS. ALL STORMWATER FLOW TO BMP AREAS SHALL BE DIVERTED, PLUGGED OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE MSD DEDICATION INSPECTOR PROVIDES APPROVAL TO PLACE THE BMP ON-LINE.

CONSTRUCTION SITE RUNOFF:

DURING CONSTRUCTION; IF SITE RUNOFF FLOWS INTO A TEMPORARY SEDIMENT BASIN THAT WILL BE CONVERTED TO A PERMANENT BMP AREA, THEN AFTER THE TRIBUTARY AREA IS COMPLETELY STABLE THE SEDIMENT BASIN WILL NEED TO BE CLEANED OF ALL SILT, SEDIMENT, AND TRASH THAT HAS ACCUMULATED WITHIN IT. OVER EXCAVATE AS NEEDED TO ALLOW FULL DEPTH OF THE BMP SECTION. BMP PLANTING, IF APPLICABLE, CAN BE INSTALLED ONLY AFTER THIS HAS BEEN DONE AND THE MSD INSPECTOR PROVIDES APPROVAL TO PLACE THE PLANTINGS.

SEWERS CONSTRUCTED AT GRADES OF ONE PERCENT (1%) OR LESS

FOR SEWER PIPE (STORM, SANITARY AND COMBINED) WITH A DESIGN GRADE LESS THAN ONE PERCENT (1%), VERIFICATION OF THE PIPE GRADE WILL BE REQUIRED FOR EACH INSTALLED REACH OF SEWER PRIOR TO ANY SURFACE RESTORATION OR INSTALLATION OF ANY SURFACE IMPROVEMENTS. THE CONTRACTOR'S FIELD SUPERVISOR WILL BE REQUIRED TO PROVIDE DAILY DOCUMENTATION VERIFYING THAT THE AS-BUILT PIPE GRADE MEETS THE DESIGN GRADE THROUGH THE SUBMITAL OF SIGNED CUT SHEETS TO THE MSD INSPECTOR UPON REQUEST.

FIELD SURVEY VERIFICATION MUST BE MADE UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE ANY SEWER REACH HAVING AN AS-BUILT GRADE WHICH IS FLATTER THAN THE DESIGN GRADE BY MORE THAN 0.1%. SEWERS WITH GRADES GREATER THAN THE DESIGN SLOPE MAY BE LEFT IN PLACE, PROVIDED NO OTHER SEWER GRADE IS REDUCED BY THIS VARIANCE IN THE AS-BUILT GRADE.

MSD ALSO RESERVED THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE ANY SEWER (AT ANY TIME PRIOR TO CONSTRUCTION APPROVAL) FOR WHICH THE AS-BUILT GRADE DOES NOT COMPLY WITH THE GRADE TOLERANCE STATED IN THE ABOVE PARAGRAPH.

THE SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COST ASSOCIATED WITH THE FIELD VERIFICATION OF THE SEWER GRADE, OR REMOVAL AND REPLACEMENT OF THE SEWER PIPE OR ASSOCIATED APPURTENANCES.

STANDARD CONSTRUCTION

ALL STORM AND SANITARY SEWER STRUCTURES AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.

SOME RECENT CHANGES CONCERN PLASTIC PIPE MATERIALS AND PIPE FIELD TESTING AND PERFORMANCE, AND INCLUDE THE FOLLOWING:

PART 2 – MATERIALS OF CONSTRUCTION

HIGH DENSITY POLYETHYLENE (HDPE) PIPE IS NOT ALLOWED FOR GRAVITY SEWERS FOR STORM, COMBINED, OR SANITARY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION".

POLYPROPYLENE (PP) PIPE IS ALLOWED AS FOLLOWS FOR GRAVITY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION":

FOR USE IN SANITARY AND COMBINED SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764- STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON- PRESSURE SANITARY SEWER APPLICATIONS. FOR USE IN STORM SEWERS 12 TO 24 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2881- STANDARD SPECIFICATION FOR 12 TO 60 IN. POLYPROPYLENE (PP) DUAL WALL PIPE AND FITTINGS FOR NON-PRESSURE STORM SEWER APPLICATIONS; OR FOR USE IN STORM SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764- STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON- PRESSURE SANITARY SEWER APPLICATIONS."

PART 4 – PIPE SEWER CONSTRUCTION

SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING – DELETE THE FIRST SENTENCE AND THE FOLLOWING REPLACEMENT APPLIES:

ALL SANITARY AND COMBINED SEWERS SHALL SUSTAIN A MAXIMUM LEAKAGE LIMIT OF 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING, SUBPARAGRAPH C, INFILTRATION/EXFILTRATION TESTING – DELETE THE SIXTH SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING REPLACEMENT APPLIES:

THE MEASUREMENT OF LEAKAGE SHALL NOT EXCEED 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH A, VACUUM TESTING – AFTER THE FIRST SENTENCE, THE FOLLOWING ADDITION APPLIES:

THE VACUUM TEST MUST BE PERFORMED PRIOR TO BACKFILLING AROUND THE MANHOLE UNLESS THE CONTRACTOR PROVIDES DOCUMENTATION FROM THE PRECAST MANHOLE MANUFACTURER STATING THAT THE MANHOLE MAY BE VACUUM TESTED AFTER BACKFILLING HAS TAKEN PLACE. THE CONTRACTOR MUST SUBMIT THIS DOCUMENTATION PRIOR TO BACKFILLING AROUND ANY MANHOLE.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH B, EXFILTRATION TESTING – DELETE THE SECOND SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING ADDITION APPLIES:

FOR EXFILTRATION TESTING, THE ALLOWABLE LEAKAGE LIMIT IS 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY WHEN THE AVERAGE HEAD ON THE TEST SECTION IS THREE FEET (3') OR LESS.

IF REINFORCED CONCRETE PIPE IS USED FOR SANITARY OR COMBINED SEWERS LARGER THAN 27", ALL PIPE AND JOINTS SHALL CONFORM TO ASTM C 361.. IN ADDITION, IF THE DIAMETER IS LARGER THAN 48", THE JOINT TYPE MUST INCLUDE A GASKET THAT IS CONFINED IN A GROOVE IN THE SPIGOT OF THE PIPE.

EXISTING CONNECTIONS:

EXISTING WATER AND SANITARY CONNECTIONS WILL NOT BE MODIFIED WITH THIS WORK.

STORMWATER MANAGEMENT FUTURE DISTURBANCE NOTE:

PROJECT DISTURBANCE = 0.30 ACRES
PROJECT RUNOFF DIFFERENTIAL = 0.13 CFS

ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORMWATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN.)

ISSUE	REMARKS/DATE
1	INITIAL SUBMITTAL 09/12/18
2	MSD COMMENTS 09/24/18
3	MSD FINAL SETS 09/27/18

Chaminade College Preparatory Inc.
425 S. Lindbergh Blvd.
St. Louis, Missouri 63131
Ph. 314-993-4400

THE **STERLING** CO.
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5065 New Baumgartner Road
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St. Louis, MO 63131

GENERAL NOTES



Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

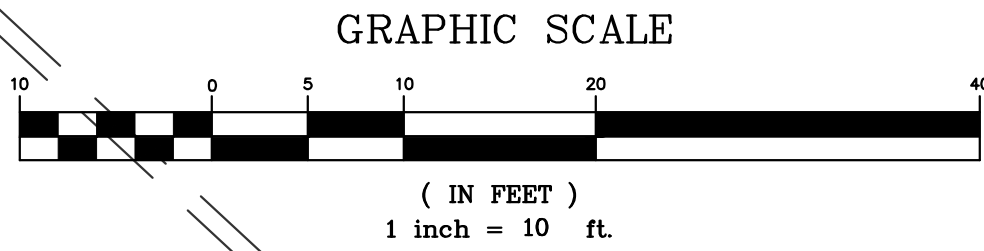
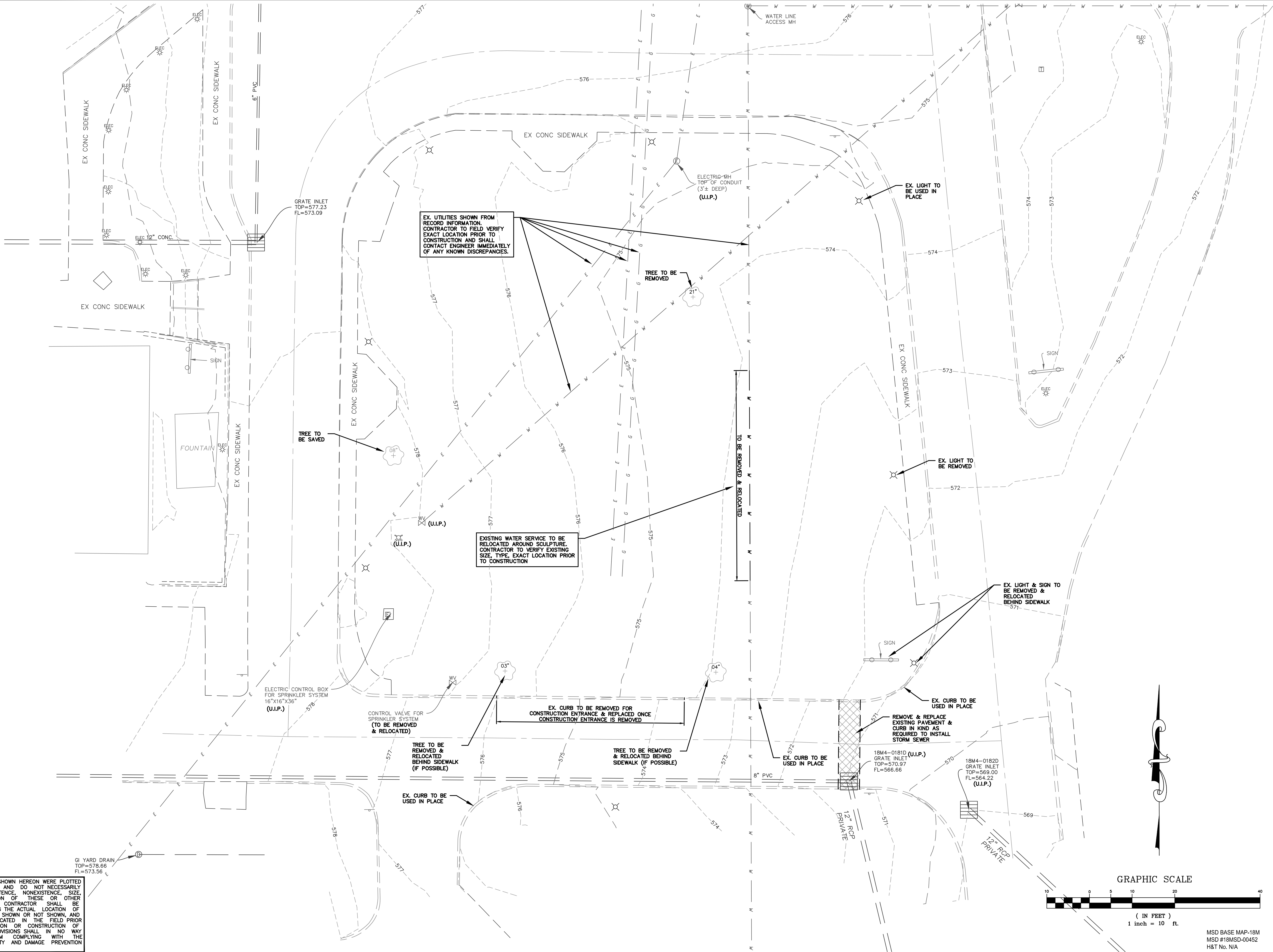
Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	1.2
Checked: SA	IMP

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

THE UNDERGROUND UTILITIES SHOWN HEREON 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 SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

Drawing name: V11803082 CHAMINADE SCULPTURE DrawingsEngineeringImprovements1082IMP.dwg Plotted on: Sep 27, 2018 - 7:26am Plotted by: sackley

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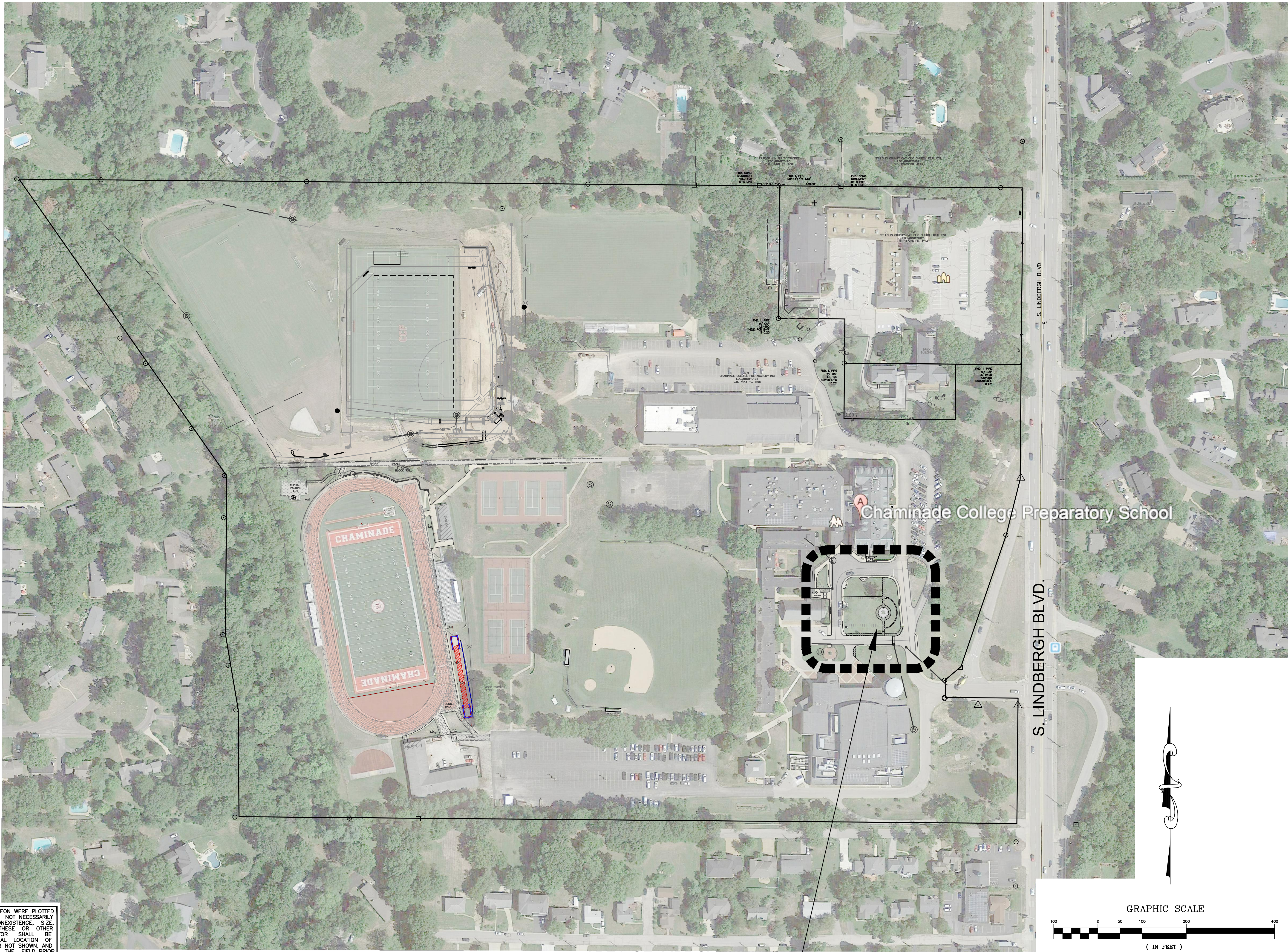
Chaminade College Preparatory School
Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
EXISTING CONDITIONS & DEMOLITION PLAN

Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number
18-03-082
Date
09/24/18
Designed: SA Sheet
Drawn: SA **2.1**
Checked: SA **IMP**

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AREA OF IMPROVEMENTS
(SEE SHEET 3.2)



MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A



Date: 09/27/18
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License No. PE-2009018679
Civil Engineer

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Designed: SA	Sheet
Drawn: SA	3.1
Checked: SA	IMP

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Christ the Teacher Sculpture
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St. Louis, MO 63131
OVERALL PLAN

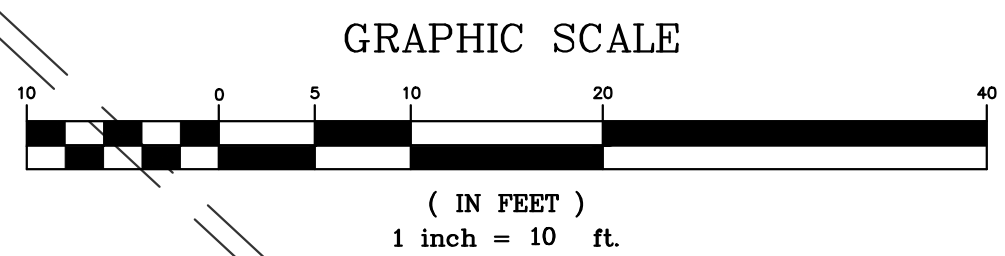
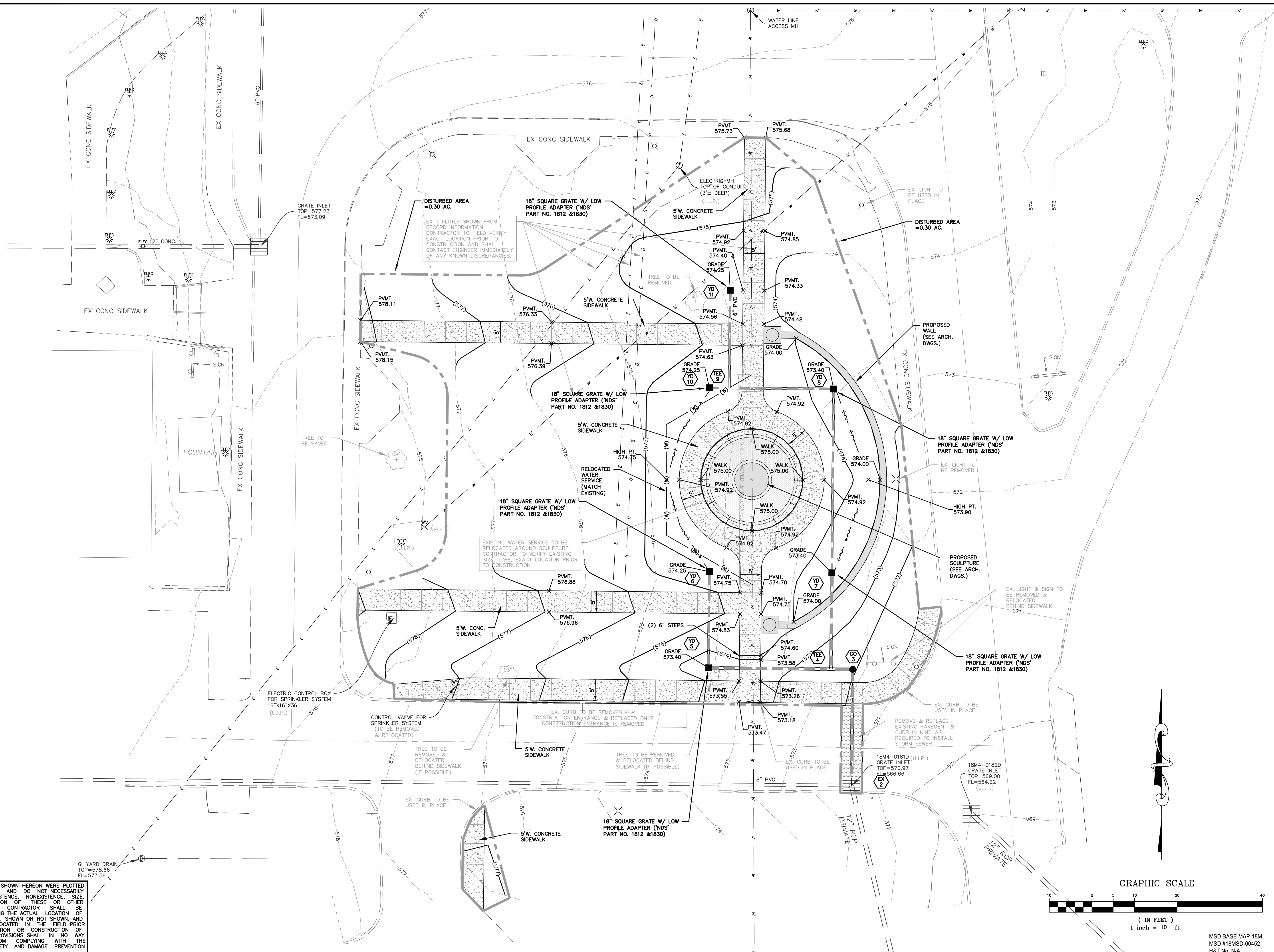
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MSD #18MSD-00452
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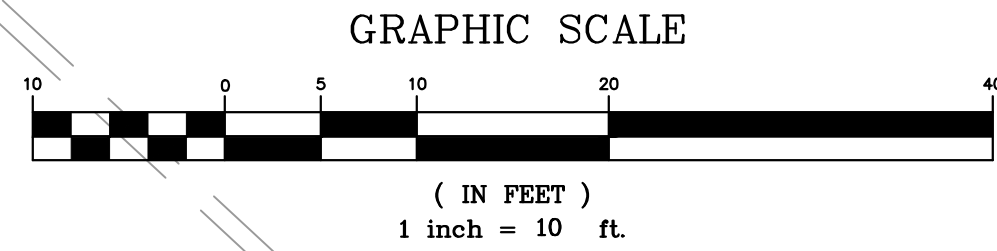
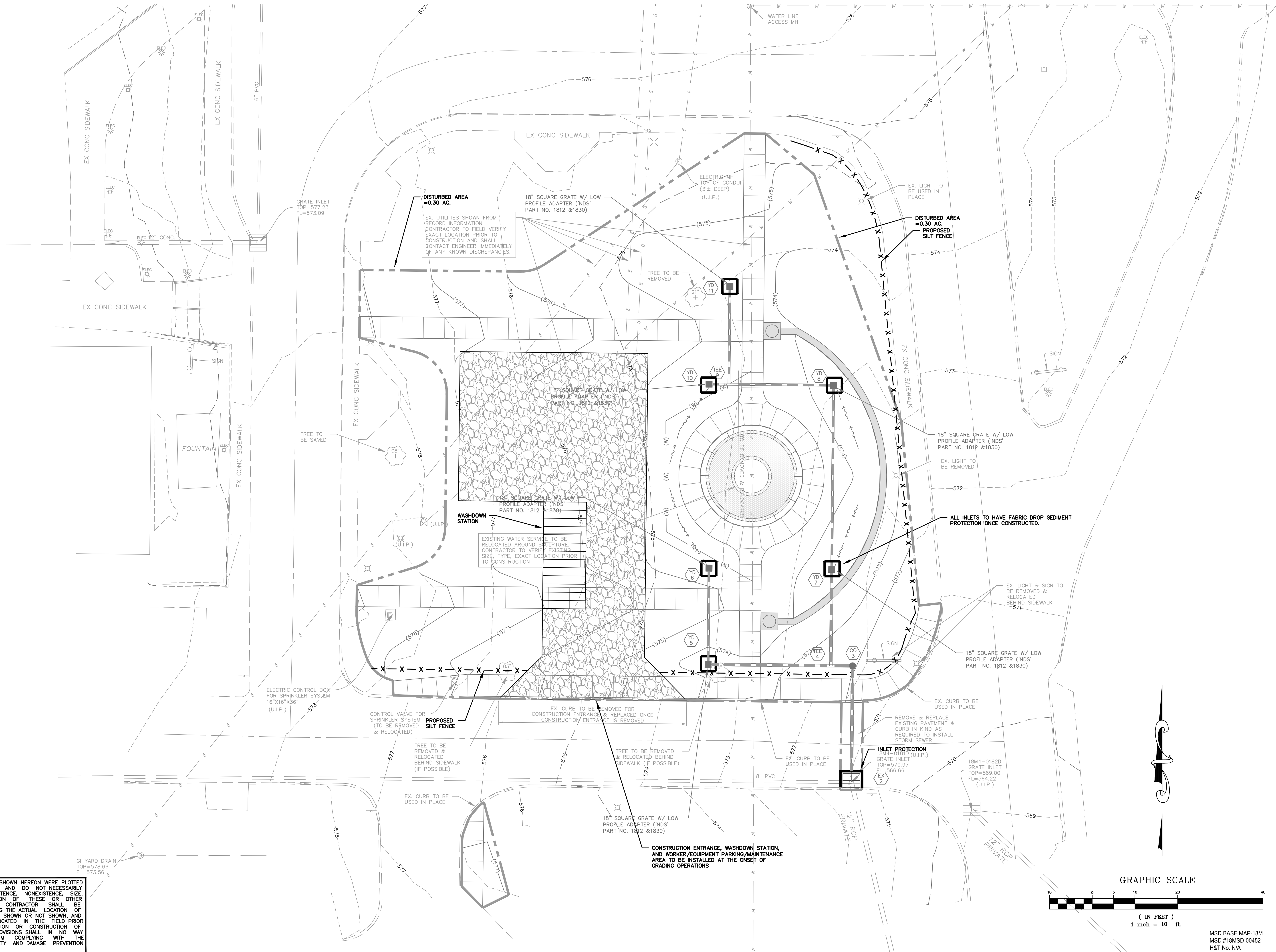
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Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
GRADING PLAN

Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	3.2
Checked: SA	IMP

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MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

ISSUE	REMARKS/DATE
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Chaminade College Preparatory School
Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
SWPPP

Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	4.1
Checked: SA	IMP

GRADING NOTES:

- Gas, Water and other underground utilities shall not conflict with depth or horizontal location of existing and proposed sanitary and storm sewers including building laterals.
- All fill areas are to be compacted to a minimum of 90% of maximum dry density as determined by the "Modified AASHTO T-180 Compaction Test" (ASTM D-1557), or as recommended by Soils Engineer.
- It shall be the grading contractors responsibility to notify the soils engineer prior to initiation or resumption of work and to comply with the recommendations and specifications with regards to compaction, surface preparation and placement of fill.
- It is the contractors responsibility to confirm the location of existing utilities and/or underground facilities by notifying utility companies prior to grading or construction of improvements.
- All offsite disturbed areas not paved shall be sodded with Bluegrass or Zoysia (where present).
- It shall be the contractors responsibility to monitor grading operations and to contact the engineer for any adjustments prior to construction of sewers, streets, etc.
- All grading adjustments shall be submitted in writing and approved by the city.
- All drainage swales shall be sodded or seeded and mulched to prevent erosion.
- Slopes to receive fill which are steeper than 5:1 should be benched prior to placement of fill.
- If fill is to be placed in areas of soft soil, particularly in draws, drainage channels and other low lying areas, the soft soil shall be excavated until firm soil is encountered.
- Existing structures and related below ground components must be properly demolished and the debris removed from the site.
- If cut and fill operations occur during a season not favorable for immediate establishment of a permanent ground cover, a fast germinating annual such as rye grasses or Sudan grasses shall be utilized to retard erosion. If adequate storm water detention and erosion control devices have not been established.
- Notify the city 48 hours prior to the commencement of grading and/or prior to the commencement of construction.
- Provide adequate off-street parking for construction employees. Parking on non-surfaced areas is prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked on to the pavement causing hazardous roadway and driving conditions. Contractor shall keep road clear of mud and debris.
- The streets surrounding this development and any street used for construction access thereto shall be cleaned throughout the day.
- Temporary siltation control measures shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
- All fill to be used in building and street areas shall be of low plasticity soil with a liquid limit of less than fifty (50). Other clay encountered shall NOT be used in the building and street areas.
- When clearing and/or grading operations are completed or suspended for more than 30 days, all necessary precautions shall be taken to retain soil material on site. Protective measures may be required by the City of Creve Coeur such as permanent seeding, periodic wetting, mulching, or other suitable means.
- No excavations shall be made so close to the property line as to endanger any adjoining property or any public or private street or property from settling, cracking or other damage.
- Storm water pipes, outlets and channels shall be protected by silt barriers and kept free of waste and silt at all times prior to final surface stabilization and/or paving.
- Any wells, cisterns and/or springs, which may exist on this property, should be located and sealed in a manner acceptable to the city and the Missouri Department of Natural Resources.
- Soft soils in the bottom and banks of any existing or former pond sites or tributaries or any sediment basins or traps should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed public right-of-way locations or in any storm sewer location.
- The grading contractor shall cut or fill to sub grade elevation under all areas to be paved.
- All trash and debris on site, either existing or from construction, must be removed and properly disposed of off site.
- All fills placed under proposed storm and sanitary sewer lines and/or paved areas, including trench backfills within and off the road right-of-way, shall be compacted to 90% of maximum density as determined by the "Modified AASHTO T-180 Compaction Test" (ASTM D-1557) for the entire depth of the fill. Compacted granular backfill is required in all trench excavation within the street right-of-way and under all paved areas. All tests shall be performed under the direction of and verified by a soils engineer concurrent with grading and backfilling operations.
- Debris and foundation material from any existing on site building or structure which is scheduled to be razed for this development must be properly disposed of off site.
- Prior to any burning, a permit must be obtained from the Missouri Department of Natural Resources, ph. (314)301-7100 and the City.
- A permit is required from the City of Creve Coeur for retaining walls with a wall height of 24" or greater.
- No slope shall exceed 3:1 maximum, unless supported by a geotechnical report that has been accepted and approved by the City.
- Any disturbed offsite property (i.e. bushes, fences, mailboxes, etc.) shall be replaced, in kind, at the developer's expense.
- Internal (private) storm sewers will require a separate Drinlayer permit from St. Louis County Department of Public Works.
- All construction shall be per the most current details located in the St. Louis County Design Criteria Manual and/or Sediment and Erosion Control Manual.
- 404/401 Permits will not be required for the project.
- No industrial activities will be preformed onsite.

SILTATION CONTROL NOTES:

- Siltation control will be installed prior to any grading or construction operations and shall be inspected and maintained as necessary to insure their proper function until sufficient vegetation has been established to prevent erosion.
- The maintenance of all siltation controls shall be the responsibility of the developer.
- Additional siltation control may be required as directed by the local governing authority.
- All grading areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by the City.
- Additional siltation control devices may be required as directed by the City.
- All stormwater shall be discharged at an adequate natural discharge point. Sinkholes are not adequate discharge points.
- Interim stormwater drainage control in the form of siltation control measures are required.
- The developer is required to provide adequate stormwater systems in accordance with the City and M.S.D. standards.
- Trees and/or shrubs shall not be removed or disturbed within the City of Creve Coeur or MoDOT right-of-way without prior approval from the City or MoDOT.

CONTROL REQUIREMENTS FOR CONSTRUCTION MATERIALS:

- Spill prevention and control facilities for materials such as paint, solvents, petroleum products, chemicals, toxic or hazardous substances, substances regulated under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and any wastes generated from the use of such materials and substances, including their containers. Any containment systems employed to meet this requirement shall be constructed of materials compatible with the substances contained and shall be adequate to protect both surface and ground water.
- Collection and disposal of discarded building materials and other construction site wastes, including those listed in section 201.6.1 of the St. Louis County ordinances # 21,578 and # 22,468.
- Litter control.
- Control of concrete truck washouts.
- Assurance that on-site fueling facilities will adhere to applicable federal and state regulations concerning storage and dispensers.
- Provision of sufficient temporary toilet facilities to serve the number of workers on Major Land Disturbance sites.

CONSTRUCTION SCHEDULE OF BMP'S:

- Construction parking will be designated in existing paved area. Construction parking area to be utilized as designated equipment, maintenance, and fuel area.
- Prior to clearing, siltation fences are to be installed at the perimeter of the land disturbance as shown (some clearing may be required prior to siltation fence installation). Remove when permanent vegetation of slope is established.
- Construct temporary sediment traps. Remove when upstream areas are stabilized with vegetation.
- Install siltation fences at/around sewer inlets after/during sewer construction. Remove after contributing drainage areas have been adequately stabilized.

Note: Additional BMP Quantities may be required for protection of storm sewer inlets.

SEEDING SCHEDULE:

Vegetation shall be established on exposed soil after a phase of rough or finished grading has been completed, or areas where no activity will occur for 30 days. See seeding rates this sheet.

ROUTINE INSPECTIONS & MAINTENANCE:

BMP'S & site are to be inspected on a regular schedule (once per week minimum) and within 48 hours after a rainfall that causes storm water runoff to occur on-site. The Inspector will be notified via phone when storm water runoff occurs on the construction site by the Project Superintendent.

CONTAINMENT FAILURE PLAN:

In the event of any loss of contained sediment:

- Repair any damaged siltation fences.
- Clean up any necessary silted areas.
- Restore any necessary silted areas.
- Provide documentation of actions & mandatory reporting to St. Louis County Department of Public Works.

ESTIMATED DISTURBED AREA = 0.30± ACRES

SITE INFORMATION:

Site Owner: CHAMINADE COLLEGE PREPARATORY SCHOOL
425 S LINDBERGH BLVD
ST. LOUIS, MO 63131
Construction Manager/24 Hour Contact:
TBD
ONSITE SUPERINTENDENT:
TBD
ALL SWPPP INSPECTION REPORTS TO BE EMAILED TO GEORGE SEIFRIED, gseifried@crevecoeurmo.gov

All construction shall be per the most current details located in the St. Louis County Design Criteria Manual and/or Sediment and Erosion Control Manual.

SWPPP NOTES:

- Prior to any Land Disturbance Activity, a land disturbance permit from the State of Missouri Department of Natural Resources and the City will be required.
- Sediment shall be washed from all vehicles at Wash Down Station prior to leaving the site. No tracking of mud onto the roads shall be allowed.
- All efforts must be used to protect the existing storm sewer system and inlets that currently drain the site. At the onset of construction existing inlets shall be protected with inlet fabric drops or protective rock barriers. Potential sources of sediment to stormwater runoff are as follows: Grubbing Operations, Mass Grading Operations, Sewer Installation, and Vehicle Tracking. Potential pollutants and sources, other than sediment, to stormwater runoff are as follows: Pesticides, Fertilizer, Cleaning Solvents, Hydraulic oil/fluids, Gasoline, Diesel Fuel, Kerosene, Antifreeze/Coolant, Sanitary Toilets.
- Permanent vegetation will remain as a permanent stormwater management structure for the site. It shall be established once grading operations have been completed in all areas not proposed for future street pavement construction. The permanent vegetation shall be maintained, inspected, and monitored until final stabilization is reached. No historical properties shall be impacted due to this development.
- The following non-storm water discharges are authorized by the EPA provided it has been determined by the permittee that they are not significant contributors to the MS4. Implementation of pollution prevention measures for non-storm water discharges is required for significant contributors. Water line flushing, landscape irrigation, Diverted stream flows, Rising Ground Waters, Uncontaminated ground water infiltration, Uncontaminated pumped ground water, Discharge from potable water sources, Foundation drains, Air Conditioning condensation, Irrigation water springs, Water from crawl space pumps, Footing drains, Lawn watering, Individual resident car washing, flows from riparian habitats and wetland, De-chlorinated swimming pool discharges, Street wash water, Residential Building wash waters without detergents. Discharges or flows from fire fighting activities occur during emergency situations. The permittee is not expected to evaluate fire fighting discharged with regard to pollutant contributions. Therefore, these discharges are authorized as allowable non-storm water discharges, unless identified, by EPA, as significant sources of pollutants to Waters of the U.S.
- Dewatering is not anticipated on this site.
- The contractor shall provide, install, maintain and remove a public notification sign per pages 41-42 of the St. Louis County Sediment and Erosion Control Manual.
- Any land clearing, construction, or development involving the movement of earth shall be in accordance with the Storm Water Pollution Prevention Plan, and the person issued a Land Disturbance Permit assumes and acknowledges responsibility for compliance with the City of Creve Coeur Land Disturbance Code and the approved Storm Water Pollution Prevention Plan at the site of the permitted activity.
- Based on cataloged information from the United States Fish & Wildlife Service Federally Listed Endangered or Threatened Species are present near or within the project area. The following is a list of the endangered or threatened species near or within the project area: Gray Bat, Indiana Bat, Mead's Milkweed, Decurrent False Aster, Running Buffalo Clover, Pink Mucket, Scalloped Mussel, Spectaclecase, Snuffbox Mussel, Sheepsnose Mussel, Pallid Sturgeon, Northern long-eared bat, least tern, piping plover, and rufo red knot.

PERMITTEE SHALL AMEND THE SWPPP WHENEVER:

- Design, operation or maintenance of BMPs is changed.
- Design of the construction project is changed that could significantly affect the quality of the storm water discharges.
- Site operator's inspections indicate deficiencies in the SWPPP or any BMP.
- Inspections by the City of Creve Coeur or by the Missouri Department of Natural Resources indicate deficiencies in the SWPPP or any BMP.
- The SWPPP is determined to be ineffective in significantly minimizing or controlling erosion or excessive sediment deposits in streams or lakes.
- The SWPPP is determined to be ineffective in preventing pollution of waterways from construction wastes, chemicals, fueling facilities, concrete truck washouts, toxic or hazardous materials, site litter or other substances or wastes likely to have an adverse impact on water quality.
- Total settleable solids from a storm water outfall exceeds 0.5 ml/L/hr if the discharge is within the prescribed proximity of a "Valuable Resource Water" as defined by the MDNR.
- Total settleable solids from the storm water outfall exceeds 2.5 ML/L/hr.
- City or the Missouri Department of Natural Resources determines violations of water quality standards may occur or have occurred.

PERMITTEE SHALL:

- Notify all contractors and other entities (including utility crews, city employees, or their agents) who will perform work at the site, of the existence of the SWPPP and what actions or precautions shall be taken while on site to minimize the potential for erosion and the potential for damaging any BMP.
- Determine the need for and establish training programs to ensure that all site workers have been trained, at a minimum, in erosion control, material handling and storage, and housekeeping.
- Provide copies of the SWPPP to all parties who are responsible for installation, operation or maintenance of any BMP.
- Maintain a current copy of the SWPPP and State and City of Creve Coeur Land Disturbance Permits on the site at all times. The SWPPP and State and City Land Disturbance Permits shall be located at the kiosk for labor and SWPPP information and needs to be available for viewing at all times.

ISSUE	REMARKS/DATE
1	INITIAL SUBMITTAL 09/24/18
2	MSD COMMENTS 08/24/18
3	MSD FINAL SETS 08/27/18

Chaminade College Preparatory Inc.
425 S. Lindbergh Blvd.
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Chaminade College Preparatory School
Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
SWPPP NOTES

Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	4.2
Checked: SA	IMP

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

THE UNDERGROUND UTILITIES SHOWN HEREON 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 SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

SEEDING

PHYSICAL DESCRIPTION - Establishment of vegetation by spreading grass seed designed to protect exposed soil from erosion by attenuating direct impact of precipitation and slowing overland flow rates. Once established, the vegetative cover will also filter pollutants from the runoff. Use only perennial vegetation for final stabilization.

WHERE BMP IS TO BE INSTALLED - To exposed soil after a phase of rough or finish grading has been completed or areas which will be left for 30 to 45 days.

CONDITIONS FOR EFFECTIVE USE OF BMPs

- Type of Flow: Sheet flow
- Contributing Slope Length: 50 foot maximum for 3:1 slopes
- 100 foot maximum for slope between 3:1 and 10:1
- Minimum Rate: See attached chart
- Acceptable Dates: See attached chart

WHEN BMP IS TO BE INSTALLED - Immediately after rough or finished grading is completed.

INSTALLATION / CONSTRUCTION PROCEDURES

- Install erosion BMPs in protected areas to be seeded.
- Thoroughly grade area and remove all debris larger than 1-inch in diameter and concentrated areas of smaller debris.
- Install stabilization grids if needed.
- Use soil amendments (lime, fertilizer, etc.) into top 6 inches of soil as needed.
- Plant seed to 1/2 to 1-inch deep.
- Water lightly to 1/2 inch per week.
- Cover seeded areas with mulch unless seeding completed during optimum spring and summer months.
- Install additional stabilization (netting, bonded fiber matrix, etc.) as required.
- Install immediately enough seed to cover 4 inches into soil without causing runoff.
- If contract / permit allows seeding to be used for final stabilization, only perennial vegetation seeds shall be used.
- For additional information see Sections 805 and 806.50 of St. Louis County's Standard Specification for Road and Bridge Construction.

QA/QC PROCEDURES

- Inspect every week and after every storm.
- Protect areas from vehicular and foot traffic.
- Re-seed areas that have not sprouted within 21 days of planting.
- Repair damaged or eroded areas and reseed as needed.
- Do not mow until a 4-inch of growth occurs.
- During the first 4 months, mow no more than 2/3 the grass height.
- Re-fertilize during 2nd growing season.

SITE CONDITIONS FOR REMOVAL - Does not require removal, but temporary seeding can be removed and necessary prior to work returning to an area.

SEEDING REQUIREMENTS

Permanent Seeding	Dist. (ft.)	Depth (in.)	Rate (lb./1000 sq. ft.)	Depth (in.)	Rate (lb./1000 sq. ft.)	Dist. (ft.)	Depth (in.)	Rate (lb./1000 sq. ft.)	Depth (in.)	Rate (lb./1000 sq. ft.)
1. Topsoil	0	0	0	0	0	0	0	0	0	0
2. Subsoil	0	0	0	0	0	0	0	0	0	0
3. Fertilizer	0	0	0	0	0	0	0	0	0	0
4. Lime	0	0	0	0	0	0	0	0	0	0
5. Mulch	0	0	0	0	0	0	0	0	0	0
6. Water	0	0	0	0	0	0	0	0	0	0
7. Fertilizer	0	0	0	0	0	0	0	0	0	0
8. Lime	0	0	0	0	0	0	0	0	0	0
9. Mulch	0	0	0	0	0	0	0	0	0	0
10. Water	0	0	0	0	0	0	0	0	0	0
11. Fertilizer	0	0	0	0	0	0	0	0	0	0
12. Lime	0	0	0	0	0	0	0	0	0	0
13. Mulch	0	0	0	0	0	0	0	0	0	0
14. Water	0	0	0	0	0	0	0	0	0	0
15. Fertilizer	0	0	0	0	0	0	0	0	0	0
16. Lime	0	0	0	0	0	0	0	0	0	0
17. Mulch	0	0	0	0	0	0	0	0	0	0
18. Water	0	0	0	0	0	0	0	0	0	0
19. Fertilizer	0	0	0	0	0	0	0	0	0	0
20. Lime	0	0	0	0	0	0	0	0	0	0
21. Mulch	0	0	0	0	0	0	0	0	0	0
22. Water	0	0	0	0	0	0	0	0	0	0
23. Fertilizer	0	0	0	0	0	0	0	0	0	0
24. Lime	0	0	0	0	0	0	0	0	0	0
25. Mulch	0	0	0	0	0	0	0	0	0	0
26. Water	0	0	0	0	0	0	0	0	0	0
27. Fertilizer	0	0	0	0	0	0	0	0	0	0
28. Lime	0	0	0	0	0	0	0	0	0	0
29. Mulch	0	0	0	0	0	0	0	0	0	0
30. Water	0	0	0	0	0	0	0	0	0	0
31. Fertilizer	0	0	0	0	0	0	0	0	0	0
32. Lime	0	0	0	0	0	0	0	0	0	0
33. Mulch	0	0	0	0	0	0	0	0	0	0
34. Water	0	0	0	0	0	0	0	0	0	0
35. Fertilizer	0	0	0	0	0	0	0	0	0	0
36. Lime	0	0	0	0	0	0	0	0	0	0
37. Mulch	0	0	0	0	0	0	0	0	0	0
38. Water	0	0	0	0	0	0	0	0	0	0
39. Fertilizer	0	0	0	0	0	0	0	0	0	0
40. Lime	0	0	0	0	0	0	0	0	0	0
41. Mulch	0	0	0	0	0	0	0	0	0	0
42. Water	0	0	0	0	0	0	0	0	0	0
43. Fertilizer	0	0	0	0	0	0	0	0	0	0
44. Lime	0	0	0	0	0	0	0	0	0	0
45. Mulch	0	0	0	0	0	0	0	0	0	0
46. Water	0	0	0	0	0	0	0	0	0	0
47. Fertilizer	0	0	0	0	0	0	0	0	0	0
48. Lime	0	0	0	0	0	0	0	0	0	0
49. Mulch	0	0	0	0	0	0	0	0	0	0
50. Water	0	0	0	0	0	0	0	0	0	0
51. Fertilizer	0	0	0	0	0	0	0	0	0	0
52. Lime	0	0	0	0	0	0	0	0	0	0
53. Mulch	0	0	0	0	0	0	0	0	0	0
54. Water	0	0	0	0	0	0	0	0	0	0
55. Fertilizer	0	0	0	0	0	0	0	0	0	0
56. Lime	0	0	0	0	0	0	0	0	0	0
57. Mulch	0	0	0	0	0	0	0	0	0	0
58. Water	0	0	0	0	0	0	0	0	0	0
59. Fertilizer	0	0	0	0	0	0	0	0	0	0
60. Lime	0	0	0	0	0	0	0	0	0	0
61. Mulch	0	0	0	0	0	0	0	0	0	0
62. Water	0	0	0	0	0	0	0	0	0	0
63. Fertilizer	0	0	0	0	0	0	0	0	0	0
64. Lime	0	0	0	0	0	0	0	0	0	0
65. Mulch	0	0	0	0	0	0	0	0	0	0
66. Water	0	0	0	0	0	0	0	0	0	0
67. Fertilizer	0	0	0	0	0	0	0	0	0	0
68. Lime	0	0	0	0	0	0	0	0	0	0
69. Mulch	0	0	0	0	0	0	0	0	0	0
70. Water	0	0	0	0	0	0	0	0	0	0
71. Fertilizer	0	0	0	0	0	0	0	0	0	0
72. Lime	0	0	0	0	0	0	0	0	0	0
73. Mulch	0	0	0	0	0	0	0	0	0	0
74. Water	0	0	0	0	0	0	0	0	0	0
75. Fertilizer	0	0	0	0	0	0	0	0	0	0
76. Lime	0	0	0	0	0	0	0	0	0	0
77. Mulch	0	0	0	0	0	0	0	0	0	0
78. Water	0	0	0	0	0	0	0	0	0	0
79. Fertilizer	0	0	0	0	0	0	0	0	0	0
80. Lime	0	0	0	0	0	0	0	0	0	0
81. Mulch	0	0	0	0	0	0	0	0	0	0
82. Water	0	0	0	0	0	0	0	0	0	0
83. Fertilizer	0	0	0	0	0	0	0	0	0	0
84. Lime	0	0	0	0	0	0	0	0	0	0
85. Mulch	0	0	0	0	0	0	0	0	0	0
86. Water	0	0	0	0	0	0	0	0	0	0
87. Fertilizer	0	0	0	0	0	0	0	0	0	0
88. Lime	0	0	0	0	0	0	0	0	0	0
89. Mulch	0	0	0	0	0	0	0	0	0	0
90. Water	0	0	0	0	0	0	0	0	0	0
91. Fertilizer	0	0	0	0	0	0	0	0	0	0
92. Lime	0	0	0	0	0	0	0	0	0	0
93. Mulch	0	0	0	0	0	0	0	0	0	0
94. Water	0	0	0	0	0	0	0	0	0	0
95. Fertilizer	0	0	0	0	0	0	0	0	0	0
96. Lime	0	0	0	0	0	0	0	0	0	0
97. Mulch	0	0	0	0	0	0	0	0	0	0
98. Water	0	0	0	0	0	0	0	0	0	0
99. Fertilizer	0	0	0	0	0	0	0	0	0	0
100. Lime	0	0	0	0	0	0	0	0	0	0
101. Mulch	0	0	0	0	0	0	0	0	0	0
102. Water	0	0	0	0	0	0	0	0	0	0
103. Fertilizer	0	0	0	0	0	0	0	0	0	0
104. Lime	0	0	0	0	0	0	0	0	0	0
105. Mulch	0	0	0	0	0	0	0	0	0	0
106. Water	0	0	0	0	0	0	0	0	0	0
107. Fertilizer	0	0	0	0	0	0	0	0	0	0
108. Lime	0	0	0	0	0	0	0	0	0	0
109. Mulch	0	0	0	0	0	0	0	0	0	0
110. Water	0	0	0	0	0	0	0	0	0	0
111. Fertilizer	0	0	0	0	0	0	0	0	0	0
112. Lime	0	0	0	0	0	0	0	0	0	0
113. Mulch	0	0	0	0	0	0	0	0	0	0
114. Water	0	0	0	0	0	0	0	0	0	0
115. Fertilizer	0	0	0	0	0	0	0	0	0	0
116. Lime	0	0	0	0	0	0	0	0	0	0
117. Mulch	0	0	0	0	0	0	0	0	0	0
118. Water	0	0	0	0	0	0	0	0	0	0
119. Fertilizer	0	0	0	0	0	0	0	0	0	0
120. Lime	0	0	0	0	0	0	0	0	0	0
121. Mulch	0	0	0	0	0	0	0	0	0	0
122. Water	0	0	0	0	0	0	0	0	0	0
123. Fertilizer	0	0	0	0	0	0	0	0	0	0
124. Lime	0	0	0	0	0	0	0	0	0	0
125. Mulch	0	0	0	0	0	0	0	0	0	0
126. Water	0	0	0	0	0	0	0	0	0	0
127. Fertilizer	0	0	0	0	0	0	0	0	0	0
128. Lime	0	0	0	0	0	0	0	0	0	0
129. Mulch	0	0	0	0	0	0	0	0	0	0
130. Water	0	0	0	0						

Drawing name: V:\1803082 CHAMINADE SCULPTURE\Drawings\Improvements\082IMP.dwg Plotted on: Sep 27, 2018 - 7:27am Plotted by: sackley

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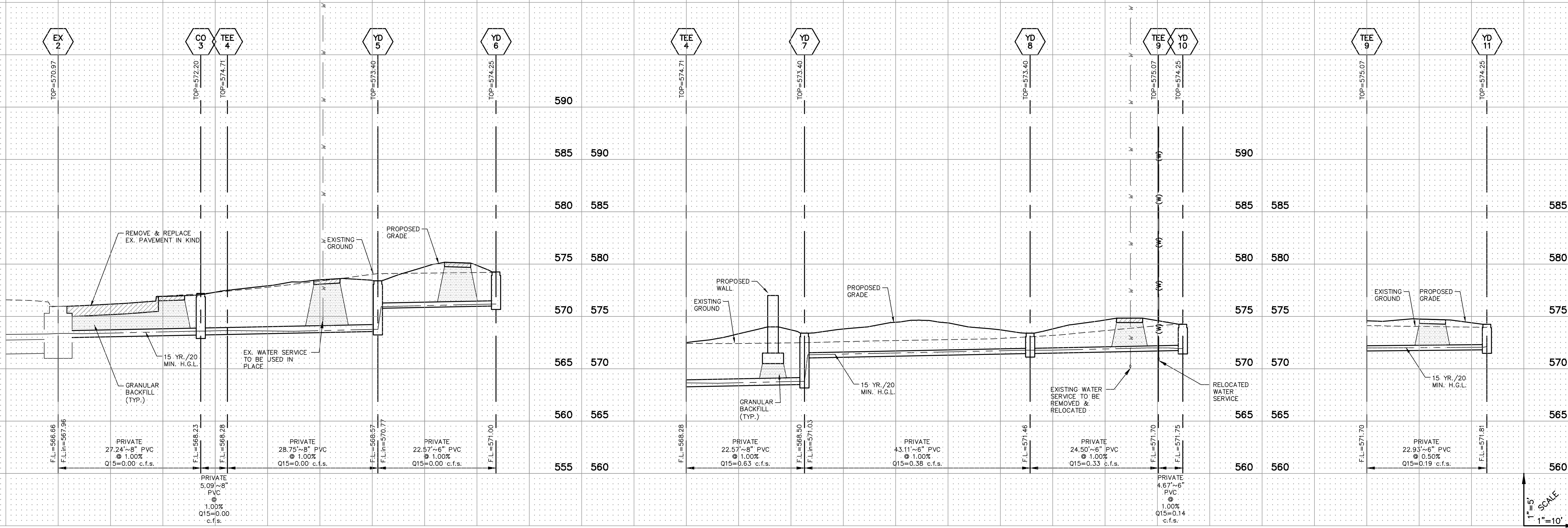
15-YEAR, 20-MIN. HYDRAULIC CALCULATIONS

LineNo.	LineID	LineSize	FlowRate	InvertDn	InvertUp	LineLength	LineSlope	VelAve	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	Rim-Hw	CriticalDepth	EGLDn	EGLUp	EnergyLoss	CapacityFull	n-valuePipe
		(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	
1	EX1-EX2	12	2.60	565.02	566.66	198.42	0.83	3.31	0.00	570.97	567.27	568.33	2.59	0.69	567.44	568.50	1.058	3.24	0.013
2	2-3	8	0.62	567.96	568.23	27.243	0.99	2.91	570.97	572.2	568.38	568.60	3.6	0.37	568.5	568.8	0	1.2	0.013
3	3-4	8	0.62	568.23	568.28	5.087	0.98	3.11	572.2	574.71	568.6	568.65	6.06	0.37	568.8	568.8	0	1.2	0.013
4	4-7	8	0.43	568.28	568.5	22.568	0.97	2.46	574.71	573.4	568.65	568.81	4.59	0.31	568.8	568.9	0	1.19	0.013
5	7-8	6	0.38	571.03	571.46	43.107	1	3	573.4	573.4	571.33	571.77	1.63	0.31	571.5	571.9	0	0.56	0.013
6	8-9	6	0.33	571.46	571.7	24.499	0.98	2.67	573.4	575.07	571.77	571.99	3.08	0.29	571.9	572.1	0	0.55	0.013
7	9-10	6	0.14	571.7	571.75	4.67	1.07	1.64	575.07	574.25	571.99	571.94	2.31	0.19	572.1	572	0	0.58	0.013
8	9-11	6	0.19	571.7	571.81	22.932	0.48	1.78	575.07	574.25	571.99	572.06	2.13	0.22	572	572.1	0.086	0.39	0.013
9	4-5	8	0.19	568.28	568.57	28.749	1.01	1.56	574.71	573.4	568.65	568.77	4.63	0.2	568.7	568.8	0	1.21	0.013
10	5-6	6	0.14	570.77	571	22.568	1.02	2.25	573.4	574.25	570.94	571.19	3.06	0.19	571	571.3	0	0.57	0.013

Notes: j-Line contains hyd. jump

100-YEAR, 20-MIN. HYDRAULIC CALCULATIONS

LineNo.	LineID	LineSize	FlowRate	InvertDn	InvertUp	LineLength	LineSlope	VelAve	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	Rim-Hw	CriticalDepth	EGLDn	EGLUp	EnergyLoss	CapacityFull	n-valuePipe
		(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	
1	EX1-EX2	12	3.51	565.02	566.66	198.42	0.83	4.47	0.00	570.97	567.27	569.19	1.69	0.80	567.58	569.50	1.925	3.24	0.013
2	2-3	8	0.84	567.96	568.23	27.243	0.99	2.4	570.97	572.2	569.28	569.42	2.7	0.43	569.4	569.5	0.131	1.2	0.013
3	3-4	8	0.84	568.23	568.28	5.087	0.98	2.4	572.2	574.71	569.51	569.53	5.09	0.43	569.6	569.6	0.024	1.2	0.013
4	4-7	8	0.58	568.28	568.5	22.568	0.97	1.66	574.71	573.4	569.62	569.67	3.72	0.36	569.7	569.7	0.052	1.19	0.013
5	7-8	6	0.51	571.03	571.46	43.107	1	3.24	573.4	573.4	571.41	571.84	1.4	0.36	571.6	572	0.431	0.56	0.013
6	8-9	6	0.45	571.46	571.7	24.499	0.98	2.37	573.4	575.07	572	572.13	2.84	0.34	572.1	572.2	0.148	0.55	0.013
7	9-10	6	0.19	571.7	571.75	4.67	1.07	0.97	575.07	574.25	572.23	572.23	2	0.22	572.2	572.3	0.005	0.58	0.013
8	9-11	6	0.26	571.7	571.81	22.932	0.48	1.33	575.07	574.25	572.23	572.27	1.95	0.25	572.3	572.3	0.045	0.39	0.013
9	4-5	8	0.26	568.28	568.57	28.749	1.01	0.73	574.71	573.4	569.62	569.63	3.76	0.23	569.6	569.6	0.013	1.21	0.013
10	5-6	6	0.19	570.77	571	22.568	1.02	2.45	573.4	574.25	570.97	571.22	3.03	0.22	571.1	571.3	0	0.57	0.013



1"=5'
1"=10'

ISSUE	REMARKS/DATE
1	INITIAL SUBMITTAL 09/12/18
2	MSD COMMENTS 09/24/18
3	MSD FINAL SETS 09/27/18

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THE **STERLING** CO.
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5055 New Baumgartner Road
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Corporate Certificate of Authority #001948

Chaminade College Preparatory School
Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
STORM SEWER PROFILES & HYDRAULICS

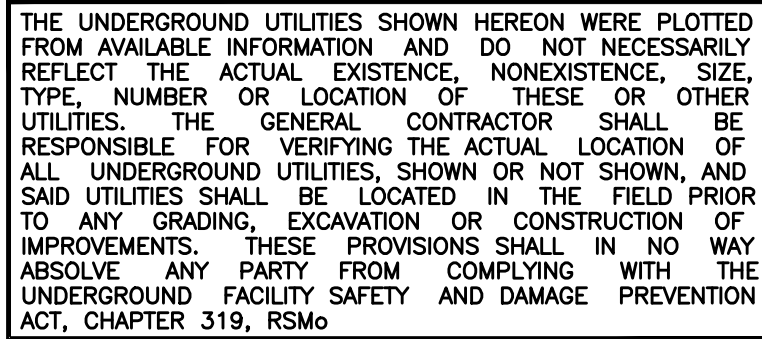
The Professional Engineer's seal and signature affixed to this sheet applies only to the material and items shown on this sheet. All drawings, calculations, and other documents not exhibiting this seal and signature shall not be considered prepared by this engineer, and the engineer assumes no responsibility for any and all responsibility for such plans, drawings or documents not exhibiting this seal and signature.

STATE OF MISSOURI
SEAN M. ACKLEY
PE-2009018679
PROFESSIONAL ENGINEER

Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number
18-03-082
Date
09/24/18
Designed: SA Sheet
Drawn: SA 5.1
Checked: SA IMP

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A



Chaminade Sculpture

Existing Drainage Area Information

	Impervious Area (PI=3.54 cfs/ac)	Grass Area (PI=1.70 cfs/ac) (acre)	Total Tributary Area (acre)	15 Yr./20 Min. Q (cfs)	100 Yr./20 Min. Q (cfs)
I.D.					
EX 1	0.05	0.37	0.42	0.80	1.08

GRAPHIC SCALE



MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

[illegible]

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Chaminade College Preparatory School
Christ the Teacher Sculpture

EXISTING DRAINAGE AREA PLAN

Attachment: Site Development Plans recd 10-31 (#18-047: Chaminade Sculpture Plaza Minor Site Plan)

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Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number 18-03-082	
Date 09/24/18	
Designed: SA	Sheet 6.1
Drawn: SA	
Checked: SA	IMP



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			Impervious Area (PI=3.54 cfs/ac)	Grass Area (PI=1.70 cfs/ac)	Total Tributary Area (acre)	15 Yr./20 Min. Q (cfs.)	Total 15 Yr./20 Min. Q in Pipe (cfs)	100 Yr./20 Min. Q (cfs.)	Total 100 Yr./20 Min. Q in Pipe (cfs)
I.D.	Upstream Structure	Downstream Structure							
1	11	9	0.02	0.08	0.10	0.19	0.19	0.26	0.26
2	10	9	0.01	0.06	0.07	0.14	0.14	0.19	0.19
3	8	7	0.01	0.01	0.02	0.05	0.38	0.07	0.51
4	7	4	0.01	0.01	0.02	0.05	0.43	0.07	0.58
5	6	5	0.02	0.05	0.07	0.14	0.14	0.20	0.20
6	5	4	0.00	0.03	0.03	0.05	0.20	0.07	0.27
7	EX2	EX1	0.01	0.00	0.01	0.03	2.61	0.04	3.53
8	EX2	EX1			0.63	1.95	2.61	2.52	3.53
9	N/A	N/A	0.05	0.05	0.10	0.27	N/A	0.36	N/A

Differential Runoff (15 Year/20 Minute Storm Event)		
Total Existing =	0.80 c.f.s.	
Total Proposed =	0.93 c.f.s.	
Differential =	0.93	-
Differential =	0.13 c.f.s.	

0.80

ISSUE	REMARKS/DATE
1	INITIAL SUBMITTAL 09/12/18
2	MSD COMMENTS 09/24/18
3	MSD FINAL SETS 09/27/18

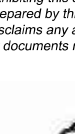
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PROPOSED DRAINAGE AREA PLAN

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Date: 09/27/18
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Civil Engineer

Job Number 18-03-082	
Date 09/24/18	
Designed: SA	Sheet 6.2 IMP
Drawn: SA	
Checked: SA	

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A

Chaminade Sculpture
WATER QUALITY VOLUME (WQ_v)-Existing Bioretention Basin (P-20946-04)
Summary of Water Quality Calculations (P-20946-04)
Water Quality Volume (WQ_v) = 6,870 c.f.
Temporary Holding Volume Required = 5,153 c.f.
Pre-Treatment Volume Required: 25% WQ_v = 1,718 c.f.
Pre-Treatment Volume Provided = 2,148 c.f.
Total Treatment Volume Provided = 8,459 c.f.
Area of Filter Required = 3,220 s.f. (See below for revised calculation)
Area of Filter Provided = 3,227 s.f.

Revised Calculation for Filter Bed Area (A_f) (P-20946-04)

$$A_f = \frac{(WQ_v) \times (d_f)}{(k) \times (h_f + d_f) \times (t_d)}$$

$$A_f = \frac{(6,870) \times (2.5)}{(2) \times (0.5 + 2.5) \times (2)} = 1,321 \text{ sf}$$

Required:
$$A_f = \frac{(6,870) \times (2.5)}{(2) \times (0.5 + 2.5) \times (2)} = 1,321 \text{ sf}$$

Water Quality Calculations (18MSD-00452)

Tributary Area = 0.32 ac.
Impervious Area = 0.05 ac.
Pervious Area = 0.27 ac.
% Impervious (I) = 15.6 %
$$WQ_v = \frac{(P)(R_v)(A)}{12} = \frac{(0.05)(0.009)(1)}{12} = 0.01 \text{ ac}^2 \times 43,560 \text{ sf/ac} = 252 \text{ cf}$$

BIORETENTION CALCULATIONS

Filter Bed Area (A_f)
$$A_f = \frac{(WQ_v) \times (d_f)}{(k) \times (h_f + d_f) \times (t_d)}$$

$$A_f = \frac{(252) \times (2.5)}{(2) \times (0.5 + 2.5) \times (2)} = 49 \text{ sf}$$

Required:
$$A_f = \frac{(3,608) \times (2.5)}{(2) \times (0.5 + 2.5) \times (2)} = 1,321 \text{ sf}$$

A_f Required per revised calculation for MSD P-20946-04 = 1,321 sf
Total A_f Required = 1,370 sf
Provided: 3,227 sf per MSD P-20946-04

WATER QUALITY VOLUME REQUIRED

Required:
75% of WQ_v = 0.75 x 252 cf = 189 cf
Total Required = 5153 cf (P-20946-04) + 189 cf = 5,342 cf
Total Required = 5,342 cf
Total Provided (P-20946-04) = 8,459 cf

Chaminade Sculpture
Flow Splitter Calculations

Peak Water Quality Flow (Q_q) (MSD P-20946-04) = 2.8 cfs
Peak Water Quality Flow (Q_q) (18MSD-00452)
Tributary Area = 0.32 ac.
Impervious Area = 0.05 ac.
Pervious Area = 0.27 ac.
% Impervious (I) = 15.6 %
$$CN = \frac{1,000}{10 + 5P + 10Q_a - 10(Q_a^2 + 1.25Q_aP)^{0.5}} = \frac{1,000}{10 + 5(0.05) + 10(0.27) - 10(0.27^2 + 1.25(0.27)(0.05))^{0.5}} = 68$$

$$Q_p = \frac{0.00778(CN)^2}{t_d} = \frac{0.00778(68)^2}{5} = 0.37 \text{ cfs}$$

$$Q_s = \frac{0.00778(CN)^2}{t_d} = \frac{0.00778(68)^2}{5} = 0.37 \text{ cfs}$$

$$Q_t = Q_p + Q_s = 0.37 + 0.37 = 0.74 \text{ cfs}$$

$$Q_v = \frac{Q_t}{2} = \frac{0.74}{2} = 0.37 \text{ cfs}$$

$$Q_w = \frac{Q_v}{2} = \frac{0.37}{2} = 0.185 \text{ cfs}$$

$$Q_b = \frac{Q_w}{2} = \frac{0.185}{2} = 0.0925 \text{ cfs}$$

$$Q_c = \frac{Q_b}{2} = \frac{0.0925}{2} = 0.04625 \text{ cfs}$$

$$Q_d = \frac{Q_c}{2} = \frac{0.04625}{2} = 0.023125 \text{ cfs}$$

$$Q_e = \frac{Q_d}{2} = \frac{0.023125}{2} = 0.0115625 \text{ cfs}$$

$$Q_f = \frac{Q_e}{2} = \frac{0.0115625}{2} = 0.00578125 \text{ cfs}$$

$$Q_g = \frac{Q_f}{2} = \frac{0.00578125}{2} = 0.002890625 \text{ cfs}$$

$$Q_h = \frac{Q_g}{2} = \frac{0.002890625}{2} = 0.0014453125 \text{ cfs}$$

$$Q_i = \frac{Q_h}{2} = \frac{0.0014453125}{2} = 0.00072265625 \text{ cfs}$$

$$Q_j = \frac{Q_i}{2} = \frac{0.00072265625}{2} = 0.000361328125 \text{ cfs}$$

$$Q_k = \frac{Q_j}{2} = \frac{0.000361328125}{2} = 0.0001806640625 \text{ cfs}$$

$$Q_l = \frac{Q_k}{2} = \frac{0.0001806640625}{2} = 9.033203125 \times 10^{-5} \text{ cfs}$$

$$Q_m = \frac{Q_l}{2} = \frac{9.033203125 \times 10^{-5}}{2} = 4.5166015625 \times 10^{-5} \text{ cfs}$$

$$Q_n = \frac{Q_m}{2} = \frac{4.5166015625 \times 10^{-5}}{2} = 2.25830078125 \times 10^{-5} \text{ cfs}$$

$$Q_o = \frac{Q_n}{2} = \frac{2.25830078125 \times 10^{-5}}{2} = 1.129150390625 \times 10^{-5} \text{ cfs}$$

$$Q_p = \frac{Q_o}{2} = \frac{1.129150390625 \times 10^{-5}}{2} = 5.645751953125 \times 10^{-6} \text{ cfs}$$

$$Q_q = \frac{Q_p}{2} = \frac{5.645751953125 \times 10^{-6}}{2} = 2.8228759765625 \times 10^{-6} \text{ cfs}$$

$$Q_r = \frac{Q_q}{2} = \frac{2.8228759765625 \times 10^{-6}}{2} = 1.41143798828125 \times 10^{-6} \text{ cfs}$$

$$Q_s = \frac{Q_r}{2} = \frac{1.41143798828125 \times 10^{-6}}{2} = 7.05718994140625 \times 10^{-7} \text{ cfs}$$

$$Q_t = \frac{Q_s}{2} = \frac{7.05718994140625 \times 10^{-7}}{2} = 3.528594970703125 \times 10^{-7} \text{ cfs}$$

$$Q_u = \frac{Q_t}{2} = \frac{3.528594970703125 \times 10^{-7}}{2} = 1.7642974853515625 \times 10^{-7} \text{ cfs}$$

$$Q_v = \frac{Q_u}{2} = \frac{1.7642974853515625 \times 10^{-7}}{2} = 8.8214874267578125 \times 10^{-8} \text{ cfs}$$

$$Q_w = \frac{Q_v}{2} = \frac{8.8214874267578125 \times 10^{-8}}{2} = 4.41074371337890625 \times 10^{-8} \text{ cfs}$$

$$Q_x = \frac{Q_w}{2} = \frac{4.41074371337890625 \times 10^{-8}}{2} = 2.205371856689453125 \times 10^{-8} \text{ cfs}$$

$$Q_y = \frac{Q_x}{2} = \frac{2.205371856689453125 \times 10^{-8}}{2} = 1.1026859283447265625 \times 10^{-8} \text{ cfs}$$

$$Q_z = \frac{Q_y}{2} = \frac{1.1026859283447265625 \times 10^{-8}}{2} = 5.5134296417236328125 \times 10^{-9} \text{ cfs}$$

$$Q_{aa} = \frac{Q_z}{2} = \frac{5.5134296417236328125 \times 10^{-9}}{2} = 2.75671482086181640625 \times 10^{-9} \text{ cfs}$$

$$Q_{ab} = \frac{Q_{aa}}{2} = \frac{2.75671482086181640625 \times 10^{-9}}{2} = 1.378357410430908203125 \times 10^{-9} \text{ cfs}$$

$$Q_{ac} = \frac{Q_{ab}}{2} = \frac{1.378357410430908203125 \times 10^{-9}}{2} = 6.891787052154541015625 \times 10^{-10} \text{ cfs}$$

$$Q_{ad} = \frac{Q_{ac}}{2} = \frac{6.891787052154541015625 \times 10^{-10}}{2} = 3.4458935260772705078125 \times 10^{-10} \text{ cfs}$$

$$Q_{ae} = \frac{Q_{ad}}{2} = \frac{3.4458935260772705078125 \times 10^{-10}}{2} = 1.72294676303863525390625 \times 10^{-10} \text{ cfs}$$

$$Q_{af} = \frac{Q_{ae}}{2} = \frac{1.72294676303863525390625 \times 10^{-10}}{2} = 8.61473381519317626953125 \times 10^{-11} \text{ cfs}$$

$$Q_{ag} = \frac{Q_{af}}{2} = \frac{8.61473381519317626953125 \times 10^{-11}}{2} = 4.307366907596588134765625 \times 10^{-11} \text{ cfs}$$

$$Q_{ah} = \frac{Q_{ag}}{2} = \frac{4.307366907596588134765625 \times 10^{-11}}{2} = 2.1536834537982940673828125 \times 10^{-11} \text{ cfs}$$

$$Q_{ai} = \frac{Q_{ah}}{2} = \frac{2.1536834537982940673828125 \times 10^{-11}}{2} = 1.07684172689914703369140625 \times 10^{-11} \text{ cfs}$$

$$Q_{aj} = \frac{Q_{ai}}{2} = \frac{1.07684172689914703369140625 \times 10^{-11}}{2} = 5.38420863449573516845578125 \times 10^{-12} \text{ cfs}$$

$$Q_{ak} = \frac{Q_{aj}}{2} = \frac{5.38420863449573516845578125 \times 10^{-12}}{2} = 2.692104317247867584227890625 \times 10^{-12} \text{ cfs}$$

$$Q_{al} = \frac{Q_{ak}}{2} = \frac{2.692104317247867584227890625 \times 10^{-12}}{2} = 1.3460521586239337921139453125 \times 10^{-12} \text{ cfs}$$

$$Q_{am} = \frac{Q_{al}}{2} = \frac{1.3460521586239337921139453125 \times 10^{-12}}{2} = 6.73026079311966896056697265625 \times 10^{-13} \text{ cfs}$$

$$Q_{an} = \frac{Q_{am}}{2} = \frac{6.73026079311966896056697265625 \times 10^{-13}}{2} = 3.365130396559834480283486328125 \times 10^{-13} \text{ cfs}$$

$$Q_{ao} = \frac{Q_{an}}{2} = \frac{3.365130396559834480283486328125 \times 10^{-13}}{2} = 1.6825651982799172401417431640625 \times 10^{-13} \text{ cfs}$$

$$Q_{ap} = \frac{Q_{ao}}{2} = \frac{1.6825651982799172401417431640625 \times 10^{-13}}{2} = 8.4128259913995862007087158203125 \times 10^{-14} \text{ cfs}$$

$$Q_{aq} = \frac{Q_{ap}}{2} = \frac{8.4128259913995862007087158203125 \times 10^{-14}}{2} = 4.20641299569979310035435791015625 \times 10^{-14} \text{ cfs}$$

$$Q_{ar} = \frac{Q_{aq}}{2} = \frac{4.20641299569979310035435791015625 \times 10^{-14}}{2} = 2.103206497849896550177178955078125 \times 10^{-14} \text{ cfs}$$

$$Q_{as} = \frac{Q_{ar}}{2} = \frac{2.103206497849896550177178955078125 \times 10^{-14}}{2} = 1.0516032489249482750885894775390625 \times 10^{-14} \text{ cfs}$$

$$Q_{at} = \frac{Q_{as}}{2} = \frac{1.0516032489249482750885894775390625 \times 10^{-14}}{2} = 5.2580162446247413750442947876953125 \times 10^{-15} \text{ cfs}$$

$$Q_{au} = \frac{Q_{at}}{2} = \frac{5.2580162446247413750442947876953125 \times 10^{-15}}{2} = 2.62900812231237068752214739384765625 \times 10^{-15} \text{ cfs}$$

$$Q_{av} = \frac{Q_{au}}{2} = \frac{2.62900812231237068752214739384765625 \times 10^{-15}}{2} = 1.314504061156185343761073696923828125 \times 10^{-15} \text{ cfs}$$

$$Q_{aw} = \frac{Q_{av}}{2} = \frac{1.314504061156185343761073696923828125 \times 10^{-15}}{2} = 6.572520305780926718805368484619140625 \times 10^{-16} \text{ cfs}$$

$$Q_{ax} = \frac{Q_{aw}}{2} = \frac{6.572520305780926718805368484619140625 \times 10^{-16}}{2} = 3.2862601528904633594026842423095703125 \times 10^{-16} \text{ cfs}$$

$$Q_{ay} = \frac{Q_{ax}}{2} = \frac{3.2862601528904633594026842423095703125 \times 10^{-16}}{2} = 1.64313007644523167970134212115478515625 \times 10^{-16} \text{ cfs}$$

$$Q_{az} = \frac{Q_{ay}}{2} = \frac{1.64313007644523167970134212115478515625 \times 10^{-16}}{2} = 8.21565038222615839850671060577392578125 \times 10^{-17} \text{ cfs}$$

$$Q_{ba} = \frac{Q_{az}}{2} = \frac{8.21565038222615839850671060577392578125 \times 10^{-17}}{2} = 4.107825191113079199253355302886962890625 \times 10^{-17} \text{ cfs}$$

$$Q_{bb} = \frac{Q_{ba}}{2} = \frac{4.107825191113079199253355302886962890625 \times 10^{-17}}{2} = 2.0539125955565395996266776514434814453125 \times 10^{-17} \text{ cfs}$$

$$Q_{bc} = \frac{Q_{bb}}{2} = \frac{2.0539125955565395996266776514434814453125 \times 10^{-17}}{2} = 1.02695629777826979981333882572174072265625 \times 10^{-17} \text{ cfs}$$

$$Q_{bd} = \frac{Q_{bc}}{2} = \frac{1.02695629777826979981333882572174072265625 \times 10^{-17}}{2} = 5.13478148889134899906666912780870361328125 \times 10^{-18} \text{ cfs}$$

$$Q_{be} = \frac{Q_{bd}}{2} = \frac{5.13478148889134899906666912780870361328125 \times 10^{-18}}{2} = 2.567390744445674499533334563904351806640625 \times 10^{-18} \text{ cfs}$$

$$Q_{bf} = \frac{Q_{be}}{2} = \frac{2.567390744445674499533334563904351806640625 \times 10^{-18}}{2} = 1.2836953722228372497666672819521759033203125 \times 10^{-18} \text{ cfs}$$

$$Q_{bg} = \frac{Q_{bf}}{2} = \frac{1.2836953722228372497666672819521759033203125 \times 10^{-18}}{2} = 6.4184768611141862488333336097608795166015625 \times 10^{-19} \text{ cfs}$$

$$Q_{bh} = \frac{Q_{bg}}{2} = \frac{6.4184768611141862488333336097608795166015625 \times 10^{-19}}{2} = 3.20923843055709312441666680488043975830078125 \times 10^{-19} \text{ cfs}$$

$$Q_{bi} = \frac{Q_{bh}}{2} = \frac{3.20923843055709312441666680488043975830078125 \times 10^{-19}}{2} = 1.604619215278546562208333402440219879150390625 \times 10^{-19} \text{ cfs}$$

$$Q_{bj} = \frac{Q_{bi}}{2} = \frac{1.604619215278546562208333402440219879150390625 \times 10^{-19}}{2} = 8.023096076392732811041667012201099395751953125 \times 10^{-20} \text{ cfs}$$

$$Q_{bk} = \frac{Q_{bj}}{2} = \frac{8.023096076392732811041667012201099395751953125 \times 10^{-20}}{2} = 4.0115480381963664055208335061005496978759765625 \times 10^{-20} \text{ cfs}$$

$$Q_{bl} = \frac{Q_{bk}}{2} = \frac{4.0115480381963664055208335061005496978759765625 \times 10^{-20}}{2} = 2.00577401909818320276041675305027484893798828125 \times 10^{-20} \text{ cfs}$$

$$Q_{bm} = \frac{Q_{bl}}{2} = \frac{2.00577401909818320276041675305027484893798828125 \times 10^{-20}}{2} = 1.002887009549091601380208376525137424468994140625 \times 10^{-20} \text{ cfs}$$

$$Q_{bn} = \frac{Q_{bm}}{2} = \frac{1.002887009549091601380208376525137424468994140625 \times 10^{-20}}{2} = 5.014435047745458006901041882625687122344970703125 \times 10^{-21} \text{ cfs}$$

$$Q_{bo} = \frac{Q_{bn}}{2} = \frac{5.014435047745458006901041882625687122344970703125 \times 10^{-21}}{2} = 2.5072175238727290034505209413128435611724853515625 \times 10^{-21} \text{ cfs}$$

$$Q_{bp} = \frac{Q_{bo}}{2} = \frac{2.5072175238727290034505209413128435611724853515625 \times 10^{-21}}{2} = 1.25360876193636450172526047065642178058624267578125 \times 10^{-21} \text{ cfs}$$

$$Q_{bq} = \frac{Q_{bp}}{2} = \frac{1.25360876193636450172526047065642178058624267578125 \times 10^{-21}}{2} = 6.26804380968182250862630235328210890293121337890625 \times 10^{-22} \text{ cfs}$$

$$Q_{br} = \frac{Q_{bq}}{2} = \frac{6.26804380968182250862630235328210890293121337890625 \times 10^{-22}}{2} = 3.134021904840911254313151176641054451465606689453125 \times 10^{-22} \text{ cfs}$$

$$Q_{bs} = \frac{Q_{br}}{2} = \frac{3.134021904840911254313151176641054451465606689453125 \times 10^{-22}}{2} = 1.5670109524204556271565755883205272257328033447265625 \times 10^{-22} \text{ cfs}$$

$$Q_{bt} = \frac{Q_{bs}}{2} = \frac{1.5670109524204556271565755883205272257328033447265625 \times 10^{-22}}{2} = 7.8350547621022781357827879416026361286640167236328125 \times 10^{-23} \text{ cfs}$$

$$Q_{bu} = \frac{Q_{bt}}{2} = \frac{7.8350547621022781357827879416026361286640167236328125 \times 10^{-23}}{2} = 3.91752738105113906789139397080131806433200836181640625 \times 10^{-23} \text{ cfs}$$

$$Q_{bv} = \frac{Q_{bu}}{2} = \frac{3.91752738105113906789139397080131806433200836181640625 \times 10^{-23}}{2} = 1.958763690525569533945696985400659032166004180908203125 \times 10^{-23} \text{ cfs}$$

$$Q_{bw} = \frac{Q_{bv}}{2} = \frac{1.958763690525569533945696985400659032166004180908203125 \times 10^{-23}}{2} = 9.793818452627847669727848427003295160830020904541015625 \times 10^{-24} \text{ cfs}$$

$$Q_{bx} = \frac{Q_{bw}}{2} = \frac{9.793818452627847669727848427003295160830020904541015625 \times 10^{-24}}{2} = 4.8969092263139238348639242135016475804150104522705078125 \times 10^{-24} \text{ cfs}$$

$$Q_{by} = \frac{Q_{bx}}{2} = \frac{4.8969092263139238348639242135016475804150104522705078125 \times 10^{-24}}{2} = 2.44845461315696191743196210675082379020750522613525390625 \times 10^{-24} \text{ cfs}$$

$$Q_{bz} = \frac{Q_{by}}{2} = \frac{2.44845461315696191743196210675082379020750522613525390625 \times 10^{-24}}{2} = 1.224227306578480958715981053375411895103752613067626953125 \times 10^{-24} \text{ cfs}$$

$$Q_{ca} = \frac{Q_{bz}}{2} = \frac{1.224227306578480958715981053375411895103752613067626953125 \times 10^{-24}}{2} = 6.121136532892404793579905266877059475518763065338134765625 \times 10^{-25} \text{ cfs}$$

$$Q_{cb} = \frac{Q_{ca}}{2} = \frac{6.121136532892404793579905266877059475518763065338134765625 \times 10^{-25}}{2} = 3.0605682664462023967899526334385297377593815326690673828125 \times 10^{-25} \text{ cfs}$$

$$Q_{cc} = \frac{Q_{cb}}{2} = \frac{3.0605682664462023967899526334385297377593815326690673828125 \times 10^{-25}}{2} = 1.53028413322310119839497631671926486887969076633453369140625 \times 10^{-25} \text{ cfs}$$

$$Q_{cd} = \frac{Q_{cc}}{2} = \frac{1.53028413322310119839497631671926486887969076633453369140625 \times 10^{-25}}{2} = 7.65142066611550599197248808359632434439845383167266845703125 \times 10^{-26} \text{ cfs}$$

$$Q_{ce} = \frac{Q_{cd}}{2} = \frac{7.65142066611550599197248808359632434439845383167266845703125 \times 10^{-26}}{2} = 3.825710333057752995986244041798162172199226915836334228515625 \times 10^{-26} \text{ cfs}$$

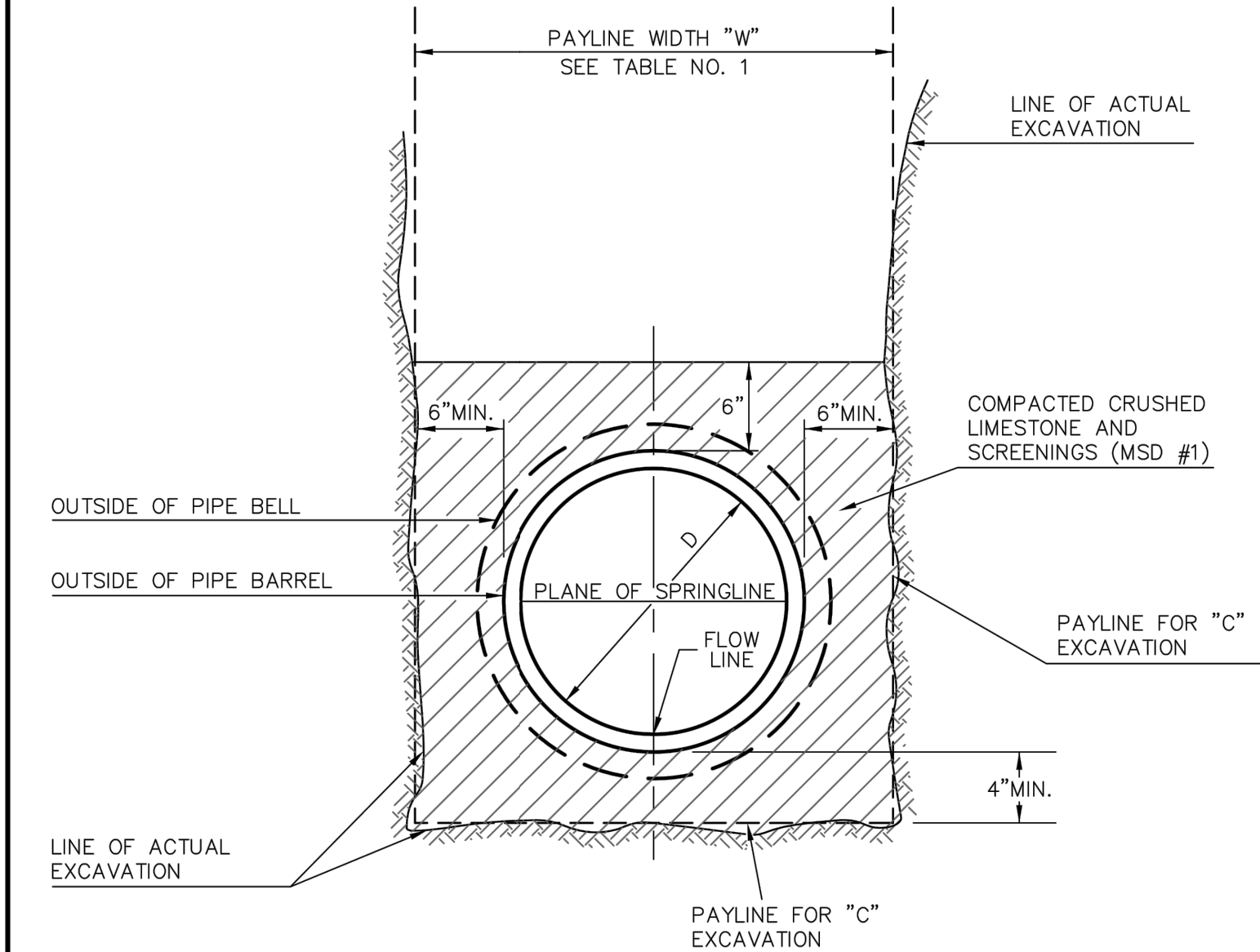
$$Q_{cf} = \frac{Q_{ce}}{2} = \frac{3.825710333057752995986244041798162172199226915836334228515625 \times 10^{-26}}{2} = 1.9128551665288764979931220208990810860996134579181671142578125 \times 10^{-26} \text{ cfs}$$

$$Q_{cg} = \frac{Q_{cf}}{2} = \frac{1.9128551665288764979931220208990810860996134579181671142578125 \times 10^{-26}}{2} = 9.5642758326443824899656101044954054304980672895908355712890625 \times 10^{-27} \text{ cfs}$$

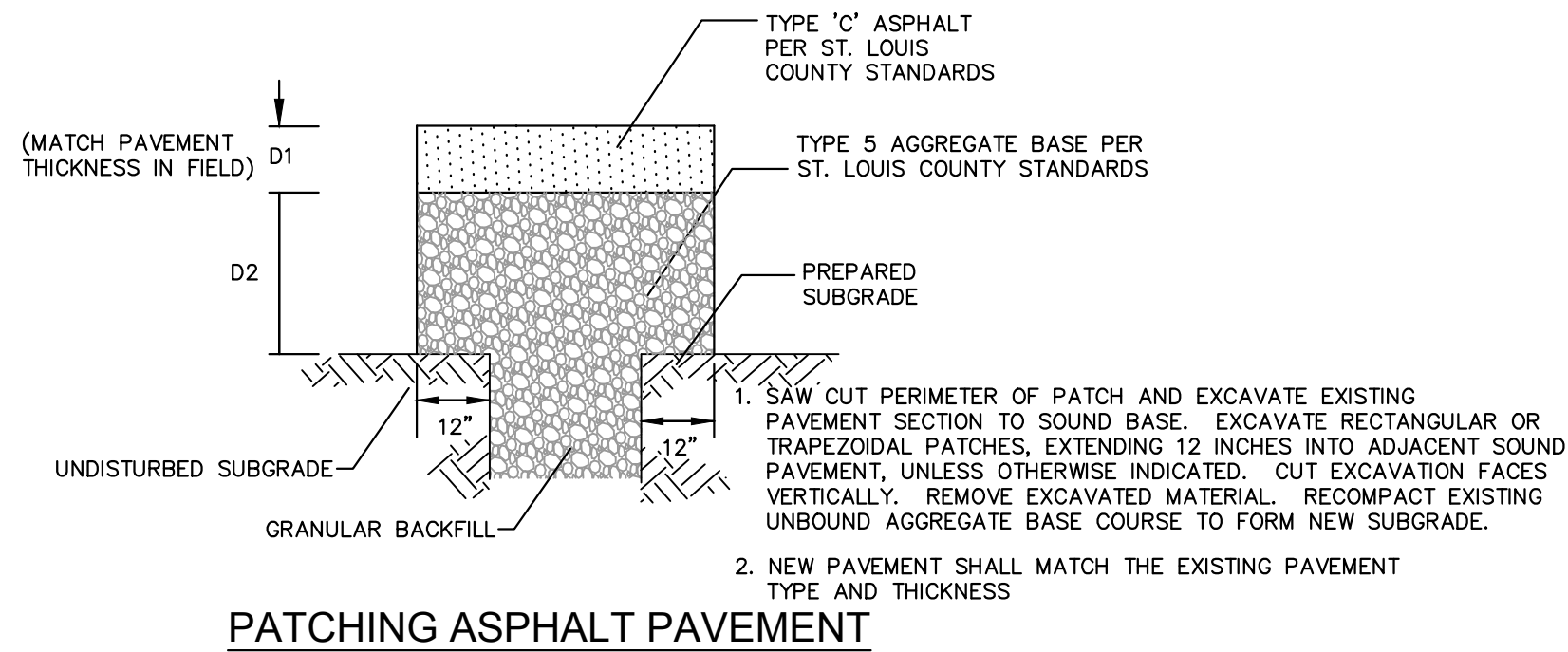
$$Q_{ch} = \frac{Q_{cg}}{2} = \frac{9.5642758326443824899656101044954054304980672895908355712890625 \times 10^{-27}}{2} = 4.78213791632219124498280505224770271524903364479541778564453125 \times 10^{-27} \text{ cfs}$$

$$Q_{ci} = \frac{Q_{ch}}{2} = \frac{4.78213791632219124498280505224770271524903364479541778564453125 \times 10^{-27}}{2} = 2.391068958161095622491402526123851$$

Packet Pg. 26



PIPE BEDDING CLASS "C" (FOR ALL 6" to 18" PIPE EXCEPT REINFORCED CONCRETE PIPE)		METROPOLITAN ST. LOUIS SEWER DISTRICT <i>Standard Details of Sewer Construction</i>	
Dr. W.S.H. Ch. J.C.K.	2009	SHEET 4	



CATCH BASINS

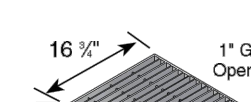
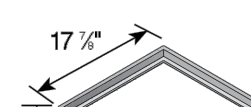
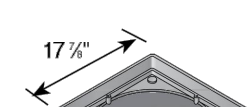
18" Catch Basin Series

DRAINAGE

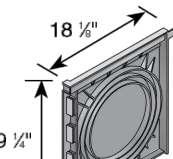
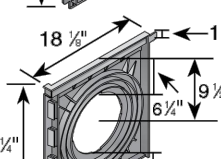
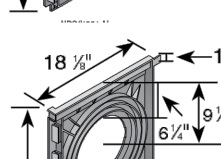
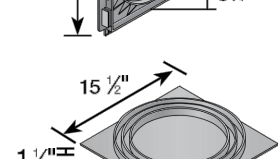
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1882</td><td>18" One-Piece Catch Basin 2 Openings</td><td>Black</td><td>1</td><td>10.00</td><td>10ND</td><td>18" x 18" One-Piece Tapered Catch Basin. Structural Foam Polyolefin.</td></tr> <tr> <td>1884</td><td>18" One-Piece Catch Basin 4 Openings</td><td>Black</td><td>1</td><td>9.65</td><td>10ND</td><td>Requires either #1206, #1242, #1243, #1245, #1266, #1888 or #1889 Universal Outlet to connect pipe to basin. Includes 2 or 4 #1890 Reducer Rings.</td></tr> </table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1882	18" One-Piece Catch Basin 2 Openings	Black	1	10.00	10ND	18" x 18" One-Piece Tapered Catch Basin. Structural Foam Polyolefin.	1884	18" One-Piece Catch Basin 4 Openings	Black	1	9.65	10ND	Requires either #1206, #1242, #1243, #1245, #1266, #1888 or #1889 Universal Outlet to connect pipe to basin. Includes 2 or 4 #1890 Reducer Rings.					
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1882	18" One-Piece Catch Basin 2 Openings	Black	1	10.00	10ND	18" x 18" One-Piece Tapered Catch Basin. Structural Foam Polyolefin.																					
1884	18" One-Piece Catch Basin 4 Openings	Black	1	9.65	10ND	Requires either #1206, #1242, #1243, #1245, #1266, #1888 or #1889 Universal Outlet to connect pipe to basin. Includes 2 or 4 #1890 Reducer Rings.																					
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1800</td><td>18" x 18" Expandable Catch Basin 2 Openings*</td><td>Black</td><td>1</td><td>16.00</td><td>10ND</td><td rowspan="2">Assembly Required. #1800 includes: 2 #1822, 2 #1820, 1 #1828, #1804 includes: 4 #1822, 1 #1828. Use #1800 and #1804 with #1206, #1243, #1245, #1266 or #1888 Universal Outlets to connect pipes to basin. Includes 2 or 4 #1890 Reducer Rings. (Note: Use Silicone to seal joints.)</td></tr> <tr> <td>1804</td><td>18" x 18" Expandable Catch Basin 4 Openings*</td><td>Black</td><td>1</td><td>16.00</td><td>10ND</td></tr> </table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1800	18" x 18" Expandable Catch Basin 2 Openings*	Black	1	16.00	10ND	Assembly Required. #1800 includes: 2 #1822, 2 #1820, 1 #1828, #1804 includes: 4 #1822, 1 #1828. Use #1800 and #1804 with #1206, #1243, #1245, #1266 or #1888 Universal Outlets to connect pipes to basin. Includes 2 or 4 #1890 Reducer Rings. (Note: Use Silicone to seal joints.)	1804	18" x 18" Expandable Catch Basin 4 Openings*	Black	1	16.00	10ND						
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1800	18" x 18" Expandable Catch Basin 2 Openings*	Black	1	16.00	10ND	Assembly Required. #1800 includes: 2 #1822, 2 #1820, 1 #1828, #1804 includes: 4 #1822, 1 #1828. Use #1800 and #1804 with #1206, #1243, #1245, #1266 or #1888 Universal Outlets to connect pipes to basin. Includes 2 or 4 #1890 Reducer Rings. (Note: Use Silicone to seal joints.)																					
1804	18" x 18" Expandable Catch Basin 4 Openings*	Black	1	16.00	10ND																						
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1816</td><td>8" Riser for 18" Catch Basin</td><td>Black</td><td>1</td><td>6.00</td><td>10ND</td><td>8" Riser for 18" x 18" Catch Basin, Styrene.</td></tr> </table> Riser package includes 4 sides. Use with #1800, #1804, #1802 or #1804.	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1816	8" Riser for 18" Catch Basin	Black	1	6.00	10ND	8" Riser for 18" x 18" Catch Basin, Styrene.												
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1816	8" Riser for 18" Catch Basin	Black	1	6.00	10ND	8" Riser for 18" x 18" Catch Basin, Styrene.																					
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1881</td><td>18" x 18" Atrium Grate</td><td>Black</td><td>2</td><td>6.51</td><td>10ND</td><td rowspan="2">18" Structural Foam Polyolefin Dome Atrium Grate with UV inhibitor. Open surface area 89.40 square inches. 273.49 GPM.</td></tr> <tr> <td>1891</td><td>18" x 18" Atrium Grate</td><td>Green</td><td>2</td><td>6.51</td><td>10ND</td></tr> </table> Use with 18" x 18" Catch Basin Series.	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1881	18" x 18" Atrium Grate	Black	2	6.51	10ND	18" Structural Foam Polyolefin Dome Atrium Grate with UV inhibitor. Open surface area 89.40 square inches. 273.49 GPM.	1891	18" x 18" Atrium Grate	Green	2	6.51	10ND						
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1881	18" x 18" Atrium Grate	Black	2	6.51	10ND	18" Structural Foam Polyolefin Dome Atrium Grate with UV inhibitor. Open surface area 89.40 square inches. 273.49 GPM.																					
1891	18" x 18" Atrium Grate	Green	2	6.51	10ND																						
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1810</td><td>18" x 18" Square Grate</td><td>Gray</td><td>4</td><td>7.72</td><td>10ND</td><td rowspan="3">18" Square Structural Foam Polyolefin Grate with UV inhibitor. Open surface area 85.31 square inches. 264.03 GPM.</td></tr> <tr> <td>1811</td><td>18" x 18" Square Grate</td><td>Black</td><td>4</td><td>7.72</td><td>10ND</td></tr> <tr> <td>1812</td><td>18" x 18" Square Grate</td><td>Green</td><td>4</td><td>7.72</td><td>10ND</td></tr> </table> Use with 18" x 18" Catch Basin Series. (see page 75, ADA Compliant.)	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1810	18" x 18" Square Grate	Gray	4	7.72	10ND	18" Square Structural Foam Polyolefin Grate with UV inhibitor. Open surface area 85.31 square inches. 264.03 GPM.	1811	18" x 18" Square Grate	Black	4	7.72	10ND	1812	18" x 18" Square Grate	Green	4	7.72	10ND
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1810	18" x 18" Square Grate	Gray	4	7.72	10ND	18" Square Structural Foam Polyolefin Grate with UV inhibitor. Open surface area 85.31 square inches. 264.03 GPM.																					
1811	18" x 18" Square Grate	Black	4	7.72	10ND																						
1812	18" x 18" Square Grate	Green	4	7.72	10ND																						
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1813</td><td>18" x 18" Cast Iron Square Grate</td><td>Black</td><td>1</td><td>46.00</td><td>10ND</td><td>18" Square Heavy-Duty Cast Iron Grate. Open surface area 110.70 square inches. 338.65 GPM. H-20 Load Rating.</td></tr> </table> Use with 18" x 18" Catch Basin Series.	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1813	18" x 18" Cast Iron Square Grate	Black	1	46.00	10ND	18" Square Heavy-Duty Cast Iron Grate. Open surface area 110.70 square inches. 338.65 GPM. H-20 Load Rating.												
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1813	18" x 18" Cast Iron Square Grate	Black	1	46.00	10ND	18" Square Heavy-Duty Cast Iron Grate. Open surface area 110.70 square inches. 338.65 GPM. H-20 Load Rating.																					
	<table> <tr> <th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr> <tr> <td>1890</td><td>Universal Outlet Reducer Ring</td><td>Black</td><td>8</td><td>0.33</td><td>10ND</td><td>Styrene.</td></tr> </table> Required on #1821 basin side when using 3", 4" or 6" pipe. Required on #1821 basin side when connecting to #1206, #1243, #1245, #1266 or #1889 Universal Outlets.	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1890	Universal Outlet Reducer Ring	Black	8	0.33	10ND	Styrene.												
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications																					
1890	Universal Outlet Reducer Ring	Black	8	0.33	10ND	Styrene.																					

CATCH BASINS

18" Catch Basin Series (continued)

	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1815</td><td>18" Square Galvanized Steel Grate</td><td>Galvanized Steel</td><td>1</td><td>10.78</td><td>10ND</td><td>18" Square Heavy-Duty Galvanized Steel Bar Grate. Open surface area 239.00 square inches. 731.13 GPM.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1815	18" Square Galvanized Steel Grate	Galvanized Steel	1	10.78	10ND	18" Square Heavy-Duty Galvanized Steel Bar Grate. Open surface area 239.00 square inches. 731.13 GPM.	Use with 18" x 18" Catch Basin Series. (see page 75)
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1815	18" Square Galvanized Steel Grate	Galvanized Steel	1	10.78	10ND	18" Square Heavy-Duty Galvanized Steel Bar Grate. Open surface area 239.00 square inches. 731.13 GPM.										
	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1840</td><td>Frame to adapt 18" x 18" grate to concrete catch basin</td><td>Black</td><td>4</td><td>2.00</td><td>10ND</td><td>18" x 18" Frame, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1840	Frame to adapt 18" x 18" grate to concrete catch basin	Black	4	2.00	10ND	18" x 18" Frame, Styrene.	Use with 18" x 18" Grates.
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1840	Frame to adapt 18" x 18" grate to concrete catch basin	Black	4	2.00	10ND	18" x 18" Frame, Styrene.										
	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1830</td><td>18" x 18" Low-Profile Adapter</td><td>Black</td><td>4</td><td>4.75</td><td>10ND</td><td>18" x 18" Low-Profile Adapter, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1830	18" x 18" Low-Profile Adapter	Black	4	4.75	10ND	18" x 18" Low-Profile Adapter, Styrene.	Includes NDS #1890 Reducer Ring. Requires either an NDS #1243, #1245, #1266 or #1888 Universal Outlet to connect to pipe.
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1830	18" x 18" Low-Profile Adapter	Black	4	4.75	10ND	18" x 18" Low-Profile Adapter, Styrene.										

18" Component Parts

	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1820</td><td>Basin Side – No Opening</td><td>Black</td><td>4</td><td>4.00</td><td>10ND</td><td>18" x 18" Catch Basin Side, No Opening, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1820	Basin Side – No Opening	Black	4	4.00	10ND	18" x 18" Catch Basin Side, No Opening, Styrene.	
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1820	Basin Side – No Opening	Black	4	4.00	10ND	18" x 18" Catch Basin Side, No Opening, Styrene.										
	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1821</td><td>Basin Side – 8" Opening Reducer Ring not included. Requires #1889 Universal Outlet to fit 8" Corrugated Pipe or Sewer and Drain Pipe or #1266 Universal Outlets. #1889 Universal Outlet does not fit this #1821 Basin Side.</td><td>Black</td><td>4</td><td>4.00</td><td>10ND</td><td>18" x 18" Catch Basin Side, 8" Opening, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1821	Basin Side – 8" Opening Reducer Ring not included. Requires #1889 Universal Outlet to fit 8" Corrugated Pipe or Sewer and Drain Pipe or #1266 Universal Outlets. #1889 Universal Outlet does not fit this #1821 Basin Side.	Black	4	4.00	10ND	18" x 18" Catch Basin Side, 8" Opening, Styrene.	
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1821	Basin Side – 8" Opening Reducer Ring not included. Requires #1889 Universal Outlet to fit 8" Corrugated Pipe or Sewer and Drain Pipe or #1266 Universal Outlets. #1889 Universal Outlet does not fit this #1821 Basin Side.	Black	4	4.00	10ND	18" x 18" Catch Basin Side, 8" Opening, Styrene.										
	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1822</td><td>Basin Side – 6" or 8" Opening Opening using Universal Outlet. Includes #1890 Reducer Ring. Use with #1206, #1242, #1243, #1245, #1266 or #1888 Universal Outlets.</td><td>Black</td><td>4</td><td>3.75</td><td>10ND</td><td>18" x 18" Catch Basin Side, 6" or 8" Opening, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1822	Basin Side – 6" or 8" Opening Opening using Universal Outlet. Includes #1890 Reducer Ring. Use with #1206, #1242, #1243, #1245, #1266 or #1888 Universal Outlets.	Black	4	3.75	10ND	18" x 18" Catch Basin Side, 6" or 8" Opening, Styrene.	
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1822	Basin Side – 6" or 8" Opening Opening using Universal Outlet. Includes #1890 Reducer Ring. Use with #1206, #1242, #1243, #1245, #1266 or #1888 Universal Outlets.	Black	4	3.75	10ND	18" x 18" Catch Basin Side, 6" or 8" Opening, Styrene.										
	<table><tr><th>Part No.</th><th>Description</th><th>Color</th><th>Pkg. Qty.</th><th>Wt. Ea. (lbs.)</th><th>Product Class</th><th>Specifications</th></tr><tr><td>1828</td><td>Basin Bottom</td><td>Black</td><td>4</td><td>2.50</td><td>10ND</td><td>18" x 18" Catch Basin Bottom, Styrene.</td></tr></table>	Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications	1828	Basin Bottom	Black	4	2.50	10ND	18" x 18" Catch Basin Bottom, Styrene.	
Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications										
1828	Basin Bottom	Black	4	2.50	10ND	18" x 18" Catch Basin Bottom, Styrene.										

ISSUE	REMARKS/DATE
1	INITIAL SUBMITTAL 09/12/18
2	MSD COMMENTS 09/24/18
3	MSD FINAL SETS 09/27/18

Chaminade College Preparatory Inc.
425 S. Lindbergh Blvd.
St. Louis, Missouri 63131
Ph. 314-993-4400

THE **STERLING** CO.
ENGINEERS & SURVEYORS
5055 New Baumgartner Road
St. Louis, Missouri 63129
Ph. 314-487-0440 Fax 314-487-8944
www.sterling-eng-sur.com
Corporate Certificate of Authority #001548

Chaminade College Preparatory School
Christ the Teacher Sculpture
425 S. Lindbergh Blvd.
St. Louis, MO 63131
DETAILS

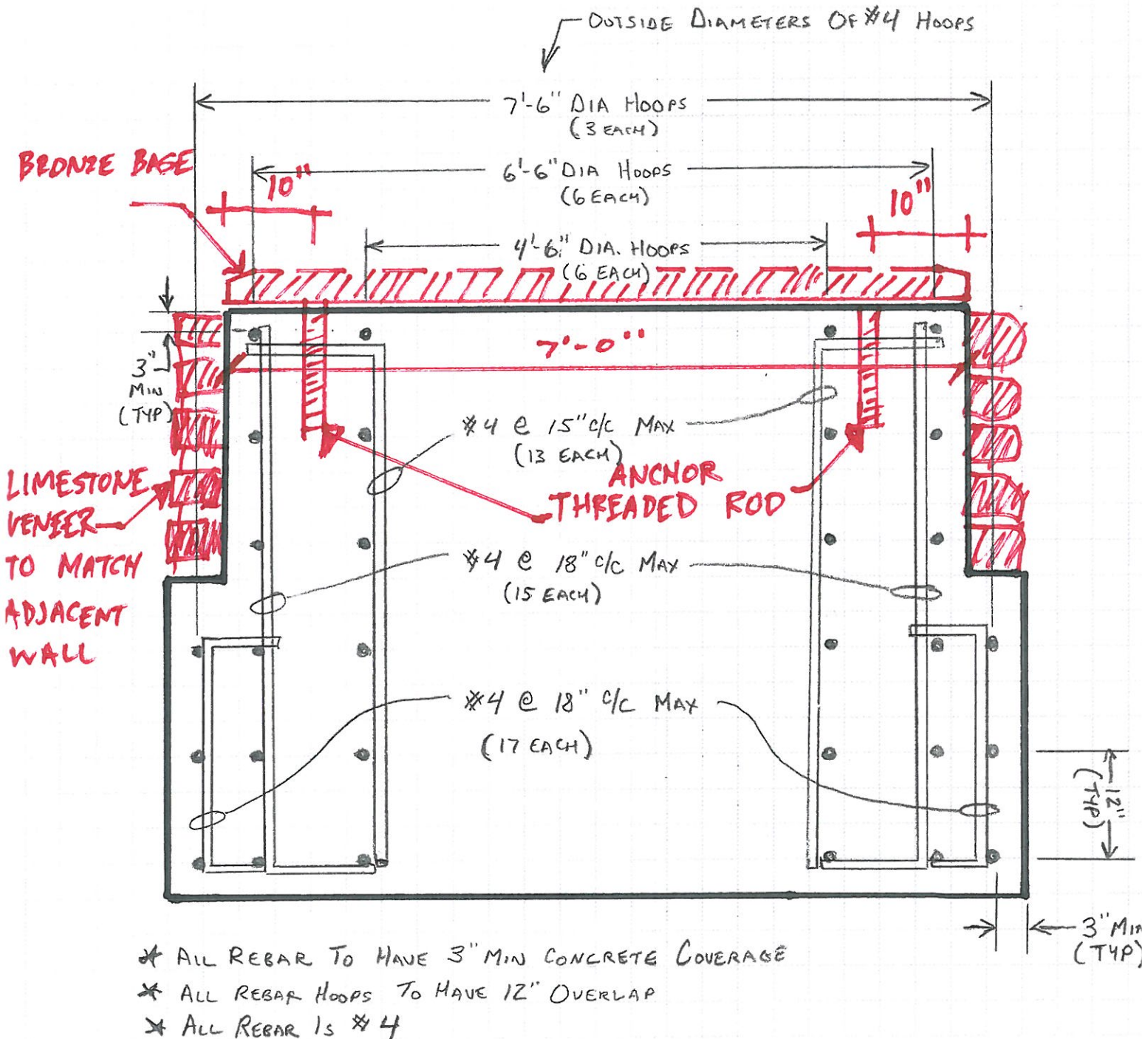
Date: 09/27/18
Sean M. Ackley
License No. PE-2009018679
Civil Engineer

Job Number	18-03-082
Date	09/24/18
Designed: SA	Sheet
Drawn: SA	7.2
Checked: SA	IMP

MSD BASE MAP-18M
MSD #18MSD-00452
H&T No. N/A



* RECOMMEND 10" FROM ED
OF 7'-0" BRONZE BASE



SCALE $\frac{3}{4}" = 1'-0"$



Attachment: 180507 Sacred Heart Statue Perspective (#18-047: Chaminade Sculpture Plaza Minor Site Plan)



CHAMINADE
COLLEGE PREPARATORY SCHOOL

Learning to Live Remarkably

Sacred Heart Statue Chaminade College Preparatory - Master Plan

Hastings+Chivetta
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May 7, 2018



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 #18-049 FOR A MINOR SITE PLAN APPROVAL FOR THE EXTERIOR MODIFICATION TO THE BUILDING AND NEW LED PARKING LOT LIGHTING AT THE FORMER HBE BUILDING

FOR THE MEETING OF: Monday, December 17, 2018

SUBJECT PROPERTY LOCATION: 11318 Olive Boulevard (aka 11330 Olive Boulevard), Zoned CB-Core Business District.

REQUEST: Peter Conant, of HBE Corporation, has submitted an application for modifications to the exterior of the building, and new LED lighting throughout the site to renovate the building for offices. Section 405.680 Lighting states that the Planning and Zoning Commission shall review proposed lighting for non-residential building construction or for the replacement or addition of light standards on an existing non-residential development in accordance with Section 405.1080. Section 405.1080 requires minor site plan approval by the Planning and Zoning Commission for any proposed alteration that would significantly affect the exterior of a building or site. City Council action is not required.

ADDITIONAL INFORMATION: The subject property is zoned CB-Core Business District. The building was originally developed in 1979 and contains pre-existing non-conformities on the site, including and not limited to, site coverage and setbacks for buildings over 45 feet when adjacent to residential districts. The request includes new materials at the front entrance and new LED lighting throughout the site. The modification to the main entrance was completed without a permit and review. Therefore, the Applicants are seeking an approval after the fact, along with the approval for new LED Lighting.

APPLICANT: Peter Conant
HBE Corporation
11330 Olive Boulevard
Creve Coeur, MO 63116

Key Issues:

- Does the request integrate with the existing surrounding uses?
- Does the request further or implement the goals of the Comprehensive Plan?
- Is the request consistent with the Design Guidelines?

Comprehensive Plan References

- Design Guidelines

Zoning Code References

- Section 405.370: CB-Core Business District
- Section 405.680: Lighting
- Section 1080: Site Concept, Site Development and Minor Site Plan Approval.



REPORT PREPARED BY: Whitney Kelly, AICP, City Planner
DATE: 12/13/2018
ATTACHMENTS: Applicant's Materials received December 3, 2018

PROJECT DESCRIPTION

The original building was developed in 1979 as an office building, and is pre-existing non-conforming to the current ordinance. The Applicants revised the main entrance to include canopy fascia with an aluminum composite material with a mirror finish, granite columns, and new spandrel glazing with reflective material on the central window element of the building, to mimic the mirror finish of the canopy.

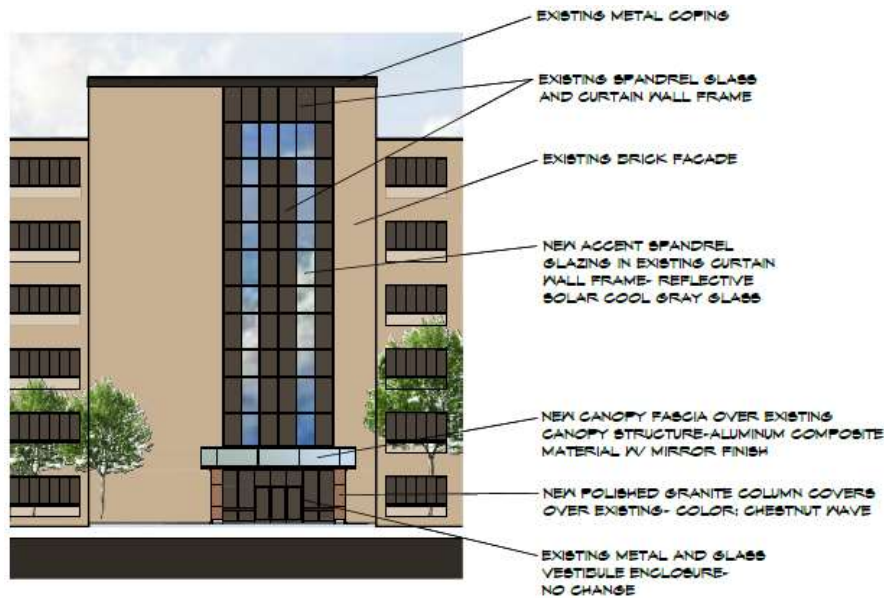


Figure 1: Applicants rendering and photo of new entrance design.

The Applicants are also seeking approval for new LED light fixtures on existing poles thought the site. The Applicants Photometric Plan indicates that the light fixture will be 0 degrees from horizontal with an average illumination of 2.8



Figure 2: Applicants Photometric Plan and Light Standard Detail.

LAND USE AND ZONING OF SURROUNDING PROPERTIES

The adjacent zoning and land uses are as follows:

DIRECTION	USE	ZONED	SEPARATED BY
North	Retail/Commercial	CB Core Business District	Olive Boulevard
South	Residential-Fairways Subdivision	B Single Family Residential	NA
East	Retail; Residential	GC- General Commercial; C-Single Family Residential with Residential Designed Development (C- RDD)	Mosley Road
West	Office/Commercial	PO-Planned Office District.	NA

COMPREHENSIVE PLAN REVIEW

Creve Coeur 2030 Plan, includes the subject property in the Mixed-Use District (MU) Place Type that supports the development of a variety of medium-density commercial, retail, office, institutional, dining community services, and multi-family residential within a suburban context. These land uses are supported primarily through vehicular access with improved walkability, pedestrian connections to adjacent neighborhoods, and beautifully landscaped street frontages. (p. 82). The building was originally developed in 1979.

Design Guidelines

The City's Design Guidelines recommend that materials should have good architectural character, be durable, and selected for their compatibility with adjoining buildings and properties. Natural, traditional building materials are encouraged. A preference should be given toward "green" building materials that can be recycled. Highly reflective and/or synthetic materials are discouraged. (Chapter E Materials/Colors, p. 9). The use of the mirror finish is very reflective in opposition to these recommendations. However, the building sits approximately 280 feet back from Olive Boulevard, and the reflective materials is used as an accent to bring attention to the main entrance of the building, where the Design Guidelines recommend that the primary building entrance should be clearly defined and provide a sense of entry (Chapter C. Design, p. 8). Therefore, in this instance, Staff finds that the proposal meets with the Design Guidelines given the current setting.

ZONING REVIEW

As the building is pre-existing, and the Applicants are only seeking to modify the exterior of the building and add new LED Lighting, zoning review is limited to the lighting standards.

Lighting

The Applicants are replacing the existing light fixtures with new LED light fixtures that are downcast. Section 405.680(B) requires that all lighting shall be downcast and fully shielded and shall not cast light upon adjacent property or right-of-way nor shall glare be emitted from an illuminant source. For non-residential parking lots, a minimum illumination of 1 foot candle is required, and a maximum height for standard light fixtures is 24 feet. The photometric plan indicates that all lighting is in compliance with Section 405.680 Lighting, in that no light will be cast upon adjacent property. At the rear of the building, just under the light fixture, shows a light reading of 6.6 at the edge of pavement. There is a 50 foot buffer year and significant landscaping from the parking lot to the rear property, therefore, no light is anticipated to leave the site. The Applicants wishes to utilize the pre-existing light poles for the new LED lighting, with the light fixture parallel to the ground at 0 degrees in compliance with the regulations. However, the height of the poles are not indicated. The existing poles are also a dark brown color. Therefore, Staff has included a condition of approval that the maximum height of the of the fixture meet with the regulations, and that the fixture be a dark color consistent to match the existing poles



Figure 3: Close-up of the Applicants Photometric Plan along the rear of the building. The red indicates the light fixture and the blue indicates where the light is less than 1 fc.

RECOMMENDATION

Based on the above analysis, the request for façade and lighting improvements meets all of the requirements of the Comprehensive Plan and Zoning Ordinances. Staff recommends the following conditions be incorporated in any motion for the approval of the minor Site Plan.

1. The Applicant is required to submit a Building Permit application, as required by Article II of the Building Code for the light fixtures as bound together and submitted in conjunction with Application #18-049 by HBE Corporation, and with all conditions of approval.
2. All lighting shall be in conformance with Section 405.680, Lighting, of the Zoning Code, and Section 205.810 of the Parking Ordinance, with a maximum height of 24 feet, and the light fixtures shall be a dark color consistent with the existing poles.
3. All signs and banners shall be in conformance with Article VIII, Sign Regulations, of the Zoning Code
4. No site development plan or minor site plan approval shall be valid for a period longer than twelve (12) months from the date it is approved, unless within such period a building permit is obtained and substantial construction is commenced. Substantial construction shall be deemed to consist of clearing the site, completion of footings, basement or building slab and inspection of such work. The Planning and Zoning Commission and the City Council, when required, may grant extensions not exceeding twelve (12) months each upon written request of the original applicant prior to the expiration of such period and resubmission of the application if the application as resubmitted is substantially the same as the initially approved application. However, the Commission and the Council, as applicable, have the power in such cases to attach new conditions to their re-approval or to disapprove the reapplication. Where the application for re-approval contains changes which the Zoning Administrator concludes materially alter the initial application, the Zoning Administrator shall initiate a new site development plan review procedure as stated in Section 405.1080 or a new minor site plan review procedure as stated in Section 405.1080.

MOTION

The motion to approve the site development plans as shown in the Applicant's materials will be in the form of approval, approval with conditions, denial or deferral. City Council action is not required for minor site development plans. The following is an example of an appropriate motion for this proposal:

"I move to recommend approval of the minor site plan for the façade and lighting improvements for the building at 11318 Olive Boulevard as bound together with Application #18-049, as presented to the Planning and Zoning Commission, subject to the conditions contained in the staff

report for the meeting of December 17, 2018” (conditions may be added, eliminated, or modified by preceding motion).

APPENDIX 1: COMPREHENSIVE PLAN, INCLUDING DESIGN GUIDELINES

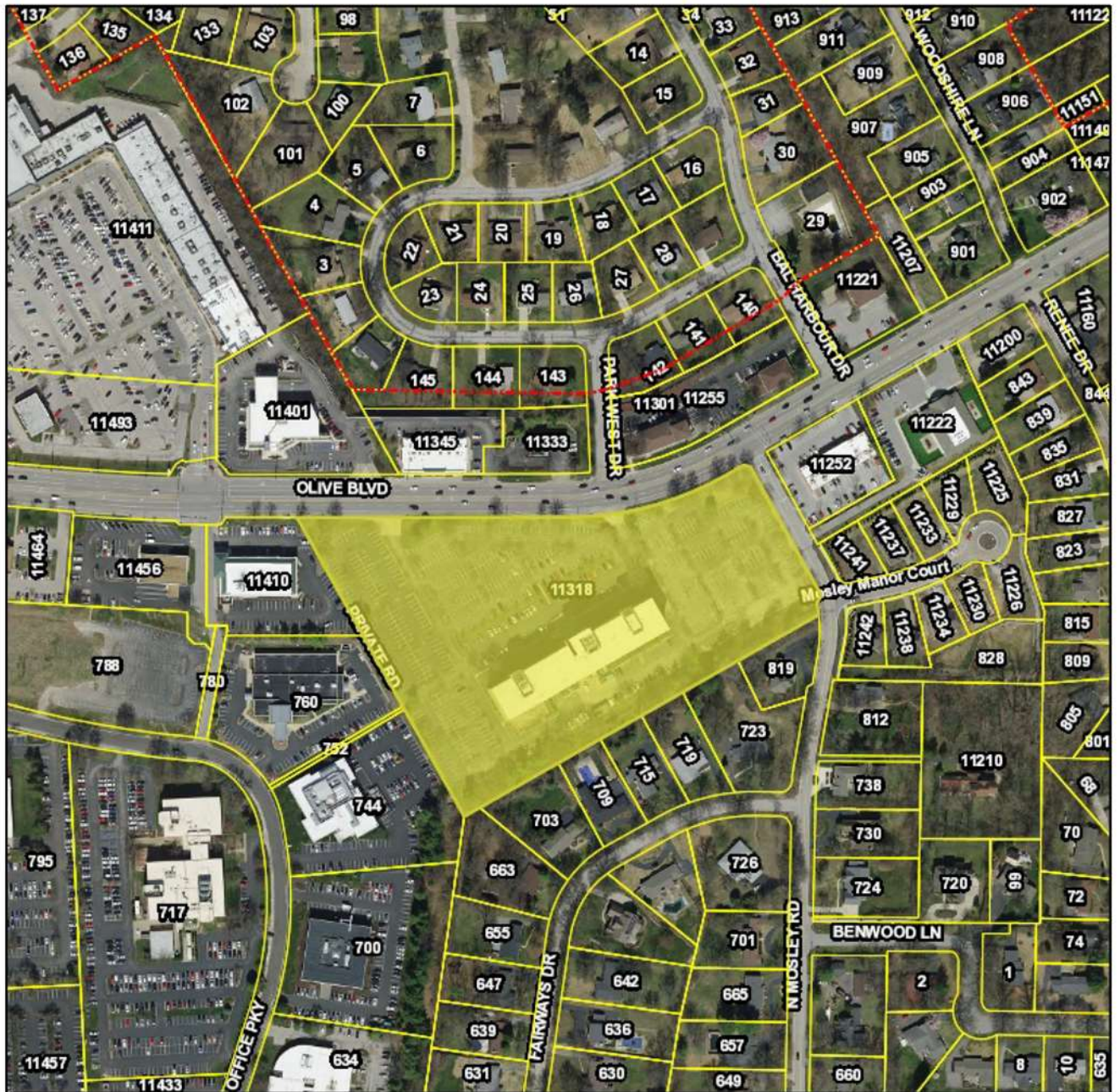
Included and attached by reference. See body of report for specific excerpts.

APPENDIX 2: ZONING CODE

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

APPENDIX 3: AERIAL PHOTO

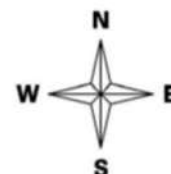
11318 Olive Boulevard (addressed as 11330 Olive Boulevard, Former HBE Office)



City Limits

Parcels

July 21, 2017



Prepared By

HORNER SHIFFRIN



APPENDIX 4: SITE PHOTOGRAPHS

Taken: 12/12/2018



Description: View of the reflective materials at the main entrance.



Description: Close-up view of the reflective materials at the main entrance canopy.



NEW POLISHED GRANITE
COLUMN COVERS OVER
EXISTING COLUMNS

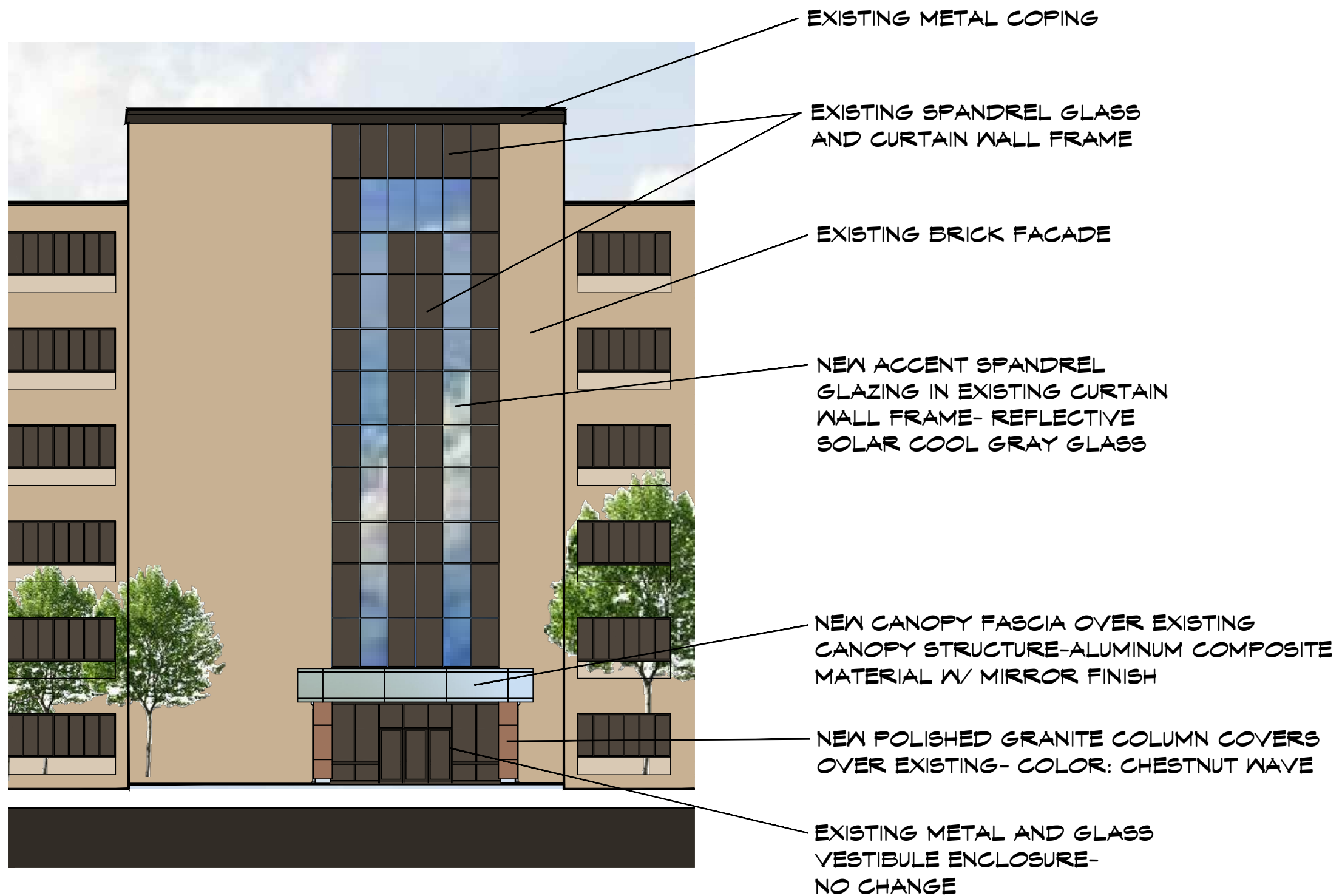
NEW FASCIA AT EXISTING
CANOPY STRUCTURE

HBE HEADQUARTERS NORTH ELEVATION

SCALE: NTS

EXTERIOR MODIFICATIONS
HBE CORPORATION
WORLD HEADQUARTERS
11330 OLIVE BLVD
CREVE COEUR, MO 63141
12/3/2018





MAIN ENTRANCE ELEVATION

SCALE: NTS

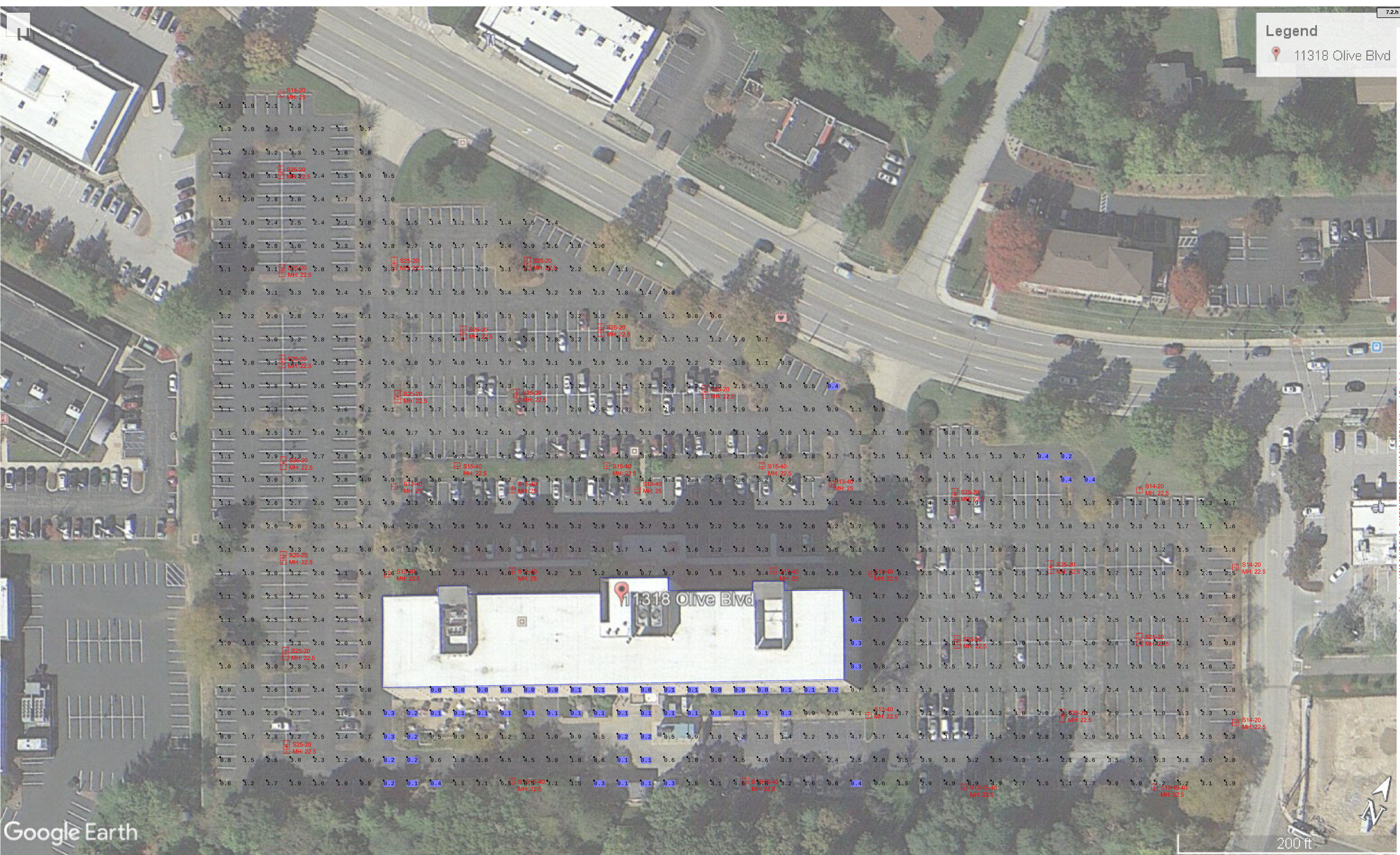
EXTERIOR MODIFICATIONS
HBE CORPORATION
WORLD HEADQUARTERS
11330 OLIVE BLVD
CREVE COEUR, MO 63141
12/3/2013











Luminaire Schedule						
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts
	7	S13-40	SINGLE	0.912	GLEON-AF-04-LED-E1-T3	225
	4	S13HS-40	SINGLE	0.912	GLEON-AF-04-LED-E1-SL3-HSS	225
	4	S14-20	SINGLE	0.912	GLEON-AF-02-LED-E1-T4W	113
	5	S15-40	SINGLE	0.912	GLEON-AF-04-LED-E1-5WQ	225
	19	S25-20	BACK-BACK	0.912	GLEON-AF-02-LED-E1-5WQ	113
						Total Watts
						1575
						900
						452
						1125
						4294

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING LOT	Illuminance	Fc	2.38	7.2	0.0	N.A.	N.A.
MOUNTING HEIGHT NEXT TO EACH FIXTURE CALCS EVERY 10' ON GROUND							
DESIGN IS BASED ON CURRENT INFORMATION PROVIDED AT THE TIME OF REQUEST. ANY CHANGES IN MOUNTING HEIGHT OR LOCATION, LAMP WATTAGE, LAMP TYPE, AND EXISTING FIELD CONDITIONS, THAT EFFECT ANY OF THE PREVIOUSLY MENTIONED, WILL VOID CURRENT LAYOUT AND REQUIRE A CHANGE REQUEST AND RECALCULATION.							

DESCRIPTION

The Galleon™ LED Flood luminaire combines the low-profile design of the Galleon with the mounting angle flexibility of a pole or wall-mounted floodlight. With a maximum tilt angle of 60° from horizontal, and patented, high-efficiency AccuLED Optics™ technology, it provides uniform and energy conscious illumination for parking lots, container/ rail yards and highway projects. Mounts direct to pole or to a, bullhorn or pole-top tenon. IP66 rated and UL/cUL Listed for wet locations.

SPECIFICATION FEATURES

Construction

Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration and IP66 rated up to 60° from horizontal. Optional tool-less hardware available for ease of entry into electrical chamber.

Optics

Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI.

Optional 6000K CCT, 5000K CCT and 3000K CCT.

Electrical

LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with our proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED Flood luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting

Cast aluminum knuckle arm mounts directly to fixture housing, and is available with either commercial pole mount or slipfitter for bullhorn, pipe or tenon mount. Can be tilted up to 60° from horizontal without compromising vibration or IP rating. Slipfitter compatible with 2-3/8" – 3" pipe or tenon mounting.

Finish

Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty

Five-year warranty.

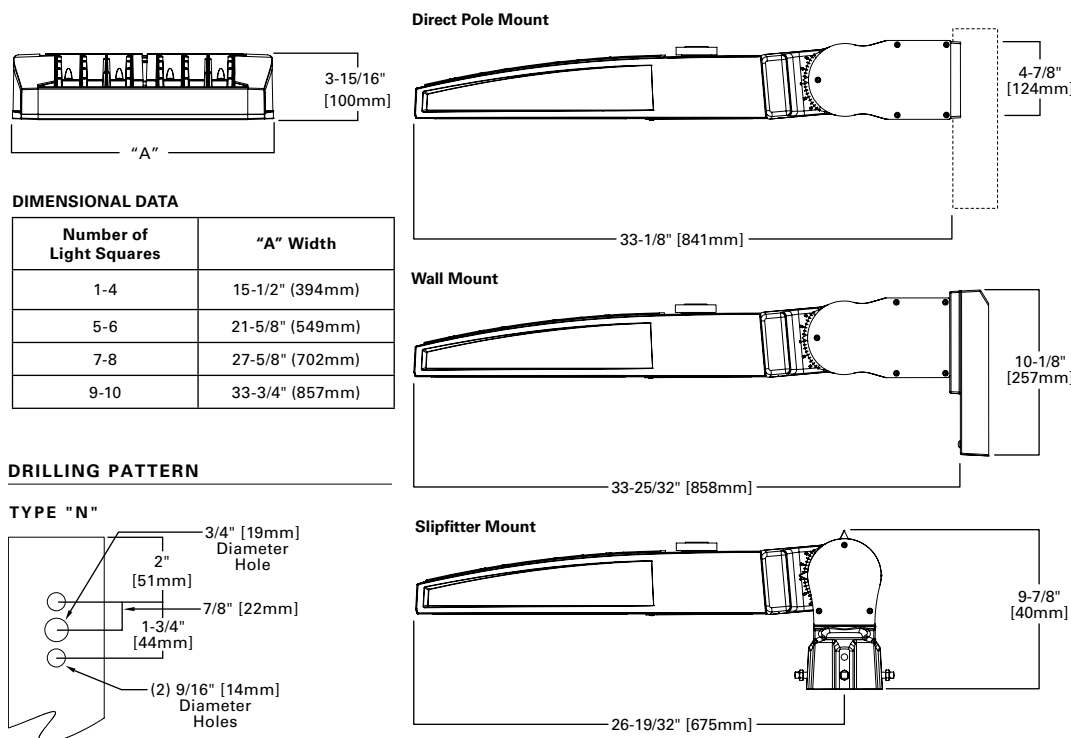


GLEON GALLEO LED FLOOD

1-10 Light Squares
Solid State LED

FLOODLIGHT LUMINAIRE

DIMENSIONS



CERTIFICATION DATA

UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated up to 60° from Horizontal
IP66 Rated up to 60° from Horizontal
DesignLights Consortium® Qualified*

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)



EPA CHART

Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	34 lbs. (15.45 kgs.)	1.21	2.42	1.94	2.19	2.92	2.83	3.87
	5-6	45 lbs. (20.45 kgs.)	1.21	2.42	2.12	2.28	3.12	3.12	4.23
	7-8	55 lbs. (25.00 kgs.)	1.21	2.42	--	2.39	--	3.42	--
	9-10	63 lbs. (28.63 kgs.)	1.21	2.42	--	2.51	--	3.73	--
15°	1-4	34 lbs. (15.45 kgs.)	1.21	2.42	2.14	2.39	3.14	3.16	4.23
	5-6	45 lbs. (20.45 kgs.)	1.21	2.42	2.46	2.46	3.43	3.60	4.91
	7-8	55 lbs. (25.00 kgs.)	1.30	2.59	--	2.65	--	4.06	--
	9-10	63 lbs. (28.63 kgs.)	1.58	3.17	--	3.02	--	4.54	--
30°	1-4	34 lbs. (15.45 kgs.)	1.41	2.82	2.94	2.78	4.05	4.25	5.88
	5-6	45 lbs. (20.45 kgs.)	1.96	3.92	3.66	3.55	5.13	5.18	7.31
	7-8	55 lbs. (25.00 kgs.)	2.51	5.01	--	4.33	--	6.16	--
	9-10	63 lbs. (28.63 kgs.)	3.06	6.12	--	5.14	--	7.23	--
45°	1-4	34 lbs. (15.45 kgs.)	1.99	2.99	3.70	3.60	5.19	5.23	7.40
	5-6	45 lbs. (20.45 kgs.)	2.77	5.55	4.76	4.72	6.76	6.67	9.81
	7-8	55 lbs. (25.00 kgs.)	3.54	7.09	--	5.85	--	8.16	--
	9-10	63 lbs. (28.63 kgs.)	4.33	8.66	--	7.01	--	9.70	--
60°	1-4	34 lbs. (15.45 kgs.)	2.44	4.88	4.30	4.24	6.09	6.04	8.60
	5-6	45 lbs. (20.45 kgs.)	3.40	6.79	--	5.64	--	7.88	--
	7-8	55 lbs. (25.00 kgs.)	4.34	8.68	--	7.03	--	9.72	--
	9-10	63 lbs. (28.63 kgs.)	5.30	10.60	--	--	--	--	--

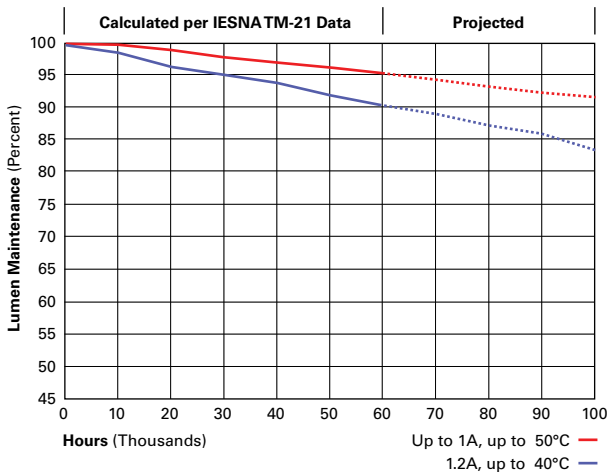
Note: Mounting not valid where left blank due to clearance.

LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000

LUMEN MULTIPLIER

Ambient Temperature	Ambient Temperature
0°	1.02
10°	1.01
25°	1.00
40°	0.99
50°	0.97



NOMINAL POWER LUMENS (1.2A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K/5000K Lumens	6,709	13,111	19,562	25,848	32,026	38,325	45,324	51,355	57,286	63,424
	3000K Lumens	5,939	11,606	17,316	22,881	28,349	33,925	40,121	45,459	50,710	56,143
T2R	4000K/5000K Lumens	7,122	13,919	20,769	27,442	34,000	40,687	48,117	54,519	60,816	67,333
	3000K Lumens	5,939	11,606	17,316	22,881	28,349	33,925	40,121	45,459	50,710	56,143
T3	4000K/5000K Lumens	6,838	13,363	19,939	26,346	32,642	39,062	46,196	52,343	58,388	64,646
	3000K Lumens	6,053	11,829	17,650	23,321	28,895	34,578	40,893	46,334	51,685	57,225
T3R	4000K/5000K Lumens	6,990	13,660	20,382	26,931	33,368	39,930	47,223	53,506	59,686	66,081
	3000K Lumens	6,188	12,092	18,042	23,839	29,537	35,346	41,802	47,364	52,834	58,495
T4FT	4000K/5000K Lumens	6,878	13,440	20,055	26,499	32,832	39,289	46,464	52,646	58,726	65,020
	3000K Lumens	6,088	11,897	17,753	23,457	29,063	34,779	41,130	46,602	51,984	57,556
T4W	4000K/5000K Lumens	6,789	13,267	19,795	26,156	32,408	38,781	45,864	51,967	57,968	64,180
	3000K Lumens	6,010	11,744	17,523	23,153	28,688	34,329	40,599	46,001	51,313	56,812
SL2	4000K/5000K Lumens	6,697	13,088	19,529	25,804	31,970	38,259	45,245	51,267	57,186	63,315
	3000K Lumens	5,928	11,585	17,287	22,842	28,300	33,867	40,051	45,382	50,621	56,046
SL3	4000K/5000K Lumens	6,837	13,361	19,936	26,342	32,639	39,057	46,189	52,336	58,380	64,636
	3000K Lumens	6,052	11,827	17,647	23,318	28,892	34,573	40,887	46,328	51,678	57,216
SL4	4000K/5000K Lumens	6,496	12,695	18,943	25,029	31,011	37,110	43,886	49,727	55,470	61,414
	3000K Lumens	5,750	11,238	16,768	22,156	27,451	32,850	38,848	44,018	49,102	54,364
5NQ	4000K/5000K Lumens	7,052	13,781	20,564	27,171	33,664	40,285	47,641	53,981	60,215	66,669
	3000K Lumens	6,242	12,199	18,203	24,052	29,799	35,660	42,172	47,784	53,302	59,015
5MQ	4000K/5000K Lumens	7,182	14,034	20,942	27,671	34,284	41,027	48,518	54,975	61,323	67,896
	3000K Lumens	6,358	12,423	18,538	24,494	30,348	36,317	42,948	48,664	54,283	60,102
5WQ	4000K/5000K Lumens	7,201	14,073	20,998	27,744	34,375	41,136	48,648	55,121	61,487	68,077
	3000K Lumens	6,374	12,457	18,587	24,559	30,429	36,414	43,063	48,793	54,428	60,262
SLL/SLR	4000K/5000K Lumens	6,009	11,741	17,519	23,148	28,681	34,321	40,589	45,990	51,301	56,798
	3000K Lumens	5,319	10,393	15,508	20,491	25,388	30,381	35,929	40,710	45,412	50,278
RW	4000K/5000K Lumens	6,989	13,657	20,378	26,925	33,360	39,921	47,211	53,494	59,672	66,066
	3000K Lumens	6,187	12,089	18,039	23,834	29,530	35,338	41,791	47,353	52,822	58,482
AFL	4000K/5000K Lumens	7,014	13,706	20,452	27,023	33,481	40,066	47,383	53,688	59,888	66,306
	3000K Lumens	6,209	12,133	18,104	23,921	29,637	35,466	41,943	47,525	53,013	58,694

* Nominal data for 70 CRI.

Attachment: ADJ GALLEON SPEC SHEET (#18-049: HBE Lighting and Facade Improvements)

NOMINAL POWER LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.6	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	1.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K/5000K Lumens	6,116	11,951	17,833	23,563	29,195	34,937	41,317	46,814	52,221	57,817
	3000K Lumens	5,414	10,579	15,786	20,858	25,843	30,926	36,574	41,440	46,226	51,180
T2R	4000K/5000K Lumens	6,493	12,688	18,932	25,015	30,994	37,090	43,863	49,699	55,439	61,380
	3000K Lumens	5,748	11,231	16,759	22,143	27,436	32,832	38,828	43,994	49,075	54,334
T3	4000K/5000K Lumens	6,234	12,181	18,176	24,017	29,756	35,609	42,111	47,715	53,225	58,930
	3000K Lumens	5,518	10,783	16,089	21,260	26,340	31,521	37,277	42,237	47,115	52,165
T3R	4000K/5000K Lumens	6,372	12,453	18,580	24,550	30,418	36,400	43,048	48,776	54,409	60,239
	3000K Lumens	5,640	11,023	16,447	21,732	26,926	32,221	38,106	43,177	48,163	53,324
T4FT	4000K/5000K Lumens	6,270	12,252	18,282	24,156	29,929	35,815	42,356	47,992	53,534	59,271
	3000K Lumens	5,550	10,845	16,183	21,383	26,493	31,703	37,494	42,483	47,388	52,467
T4W	4000K/5000K Lumens	6,189	12,094	18,045	23,844	29,543	35,352	41,809	47,372	52,843	58,506
	3000K Lumens	5,479	10,706	15,973	21,107	26,151	31,294	37,009	41,934	46,777	51,790
SL2	4000K/5000K Lumens	6,105	11,931	17,803	23,522	29,144	34,877	41,245	46,734	52,130	57,717
	3000K Lumens	5,404	10,561	15,759	20,822	25,798	30,873	36,510	41,369	46,145	51,091
SL3	4000K/5000K Lumens	6,233	12,180	18,174	24,013	29,753	35,604	42,106	47,708	53,218	58,921
	3000K Lumens	5,517	10,782	16,088	21,256	26,337	31,517	37,272	42,231	47,109	52,157
SL4	4000K/5000K Lumens	5,922	11,572	17,268	22,816	28,269	33,829	40,006	45,330	50,566	55,984
	3000K Lumens	5,242	10,244	15,286	20,197	25,024	29,945	35,413	40,126	44,761	49,557
5NQ	4000K/5000K Lumens	6,429	12,563	18,746	24,768	30,688	36,723	43,429	49,208	54,891	60,775
	3000K Lumens	5,691	11,121	16,594	21,925	27,165	32,507	38,443	43,559	48,590	53,798
5MQ	4000K/5000K Lumens	6,547	12,794	19,090	25,224	31,253	37,400	44,228	50,114	55,902	61,893
	3000K Lumens	5,795	11,325	16,898	22,328	27,665	33,106	39,151	44,361	49,484	54,788
5WQ	4000K/5000K Lumens	6,564	12,828	19,141	25,291	31,336	37,499	44,347	50,248	56,051	62,058
	3000K Lumens	5,810	11,355	16,944	22,388	27,739	33,194	39,256	44,480	49,616	54,934
SLL/SLR	4000K/5000K Lumens	5,478	10,703	15,970	21,102	26,145	31,286	37,001	41,924	46,765	51,777
	3000K Lumens	4,849	9,474	14,137	18,679	23,144	27,694	32,753	37,111	41,396	45,833
RW	4000K/5000K Lumens	6,371	12,449	18,576	24,544	30,411	36,392	43,037	48,764	54,396	60,225
	3000K Lumens	5,640	11,020	16,443	21,726	26,920	32,214	38,096	43,166	48,151	53,311
AFL	4000K/5000K Lumens	6,394	12,494	18,644	24,634	30,521	36,524	43,194	48,942	54,593	60,444
	3000K Lumens	5,660	11,060	16,504	21,806	27,017	32,331	38,235	43,323	48,326	53,505

* Nominal data for 70 CRI.

Attachment: ADJ GALLEON SPEC SHEET (#18-049: HBE Lighting and Facade Improvements)

NOMINAL POWER LUMENS (800MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K/5000K Lumens	4,941	9,656	14,408	19,038	23,588	28,227	33,382	37,823	42,191	46,713
	3000K Lumens	4,374	8,547	12,754	16,852	20,880	24,987	29,550	33,481	37,347	41,350
T2R	4000K/5000K Lumens	5,246	10,251	15,296	20,211	25,041	29,966	35,439	40,154	44,791	49,592
	3000K Lumens	4,644	9,074	13,540	17,891	22,166	26,526	31,371	35,544	39,649	43,899
T3	4000K/5000K Lumens	5,037	9,842	14,685	19,404	24,041	28,770	34,024	38,551	43,003	47,612
	3000K Lumens	4,459	8,712	12,999	17,176	21,281	25,467	30,118	34,125	38,066	42,146
T3R	4000K/5000K Lumens	5,148	10,061	15,011	19,835	24,576	29,409	34,780	39,408	43,959	48,669
	3000K Lumens	4,557	8,906	13,288	17,558	21,755	26,033	30,787	34,884	38,913	43,082
T4FT	4000K/5000K Lumens	5,066	9,899	14,770	19,516	24,181	28,936	34,221	38,774	43,252	47,888
	3000K Lumens	4,484	8,763	13,074	17,276	21,405	25,614	30,292	34,323	38,287	42,390
T4W	4000K/5000K Lumens	5,000	9,771	14,579	19,264	23,869	28,562	33,779	38,274	42,694	47,269
	3000K Lumens	4,426	8,649	12,905	17,052	21,129	25,283	29,901	33,880	37,793	41,843
SL2	4000K/5000K Lumens	4,933	9,639	14,383	19,005	23,547	28,178	33,324	37,758	42,118	46,632
	3000K Lumens	4,367	8,532	12,732	16,823	20,844	24,943	29,498	33,423	37,283	41,279
SL3	4000K/5000K Lumens	5,036	9,841	14,683	19,401	24,039	28,766	34,019	38,546	42,997	47,605
	3000K Lumens	4,458	8,711	12,997	17,174	21,279	25,464	30,114	34,121	38,061	42,140
SL4	4000K/5000K Lumens	4,784	9,350	13,951	18,434	22,840	27,332	32,323	36,624	40,854	45,232
	3000K Lumens	4,235	8,277	12,349	16,318	20,218	24,194	28,612	32,420	36,164	40,039
5NQ	4000K/5000K Lumens	5,194	10,150	15,145	20,011	24,794	29,670	35,088	39,757	44,349	49,102
	3000K Lumens	4,598	8,985	13,406	17,714	21,948	26,264	31,060	35,193	39,258	43,465
5MQ	4000K/5000K Lumens	5,290	10,337	15,424	20,380	25,250	30,217	35,734	40,489	45,165	50,006
	3000K Lumens	4,683	9,150	13,653	18,040	22,351	26,748	31,632	35,841	39,980	44,265
5WQ	4000K/5000K Lumens	5,304	10,365	15,465	20,434	25,318	30,297	35,830	40,597	45,286	50,139
	3000K Lumens	4,695	9,175	13,690	18,088	22,411	26,819	31,717	35,936	40,087	44,383
SLL/SLR	4000K/5000K Lumens	4,426	8,648	12,903	17,049	21,124	25,278	29,894	33,872	37,784	41,832
	3000K Lumens	3,918	7,655	11,422	15,092	18,699	22,376	26,462	29,983	33,446	37,030
RW	4000K/5000K Lumens	5,147	10,058	15,009	19,830	24,570	29,402	34,771	39,399	43,949	48,658
	3000K Lumens	4,556	8,903	13,286	17,554	21,749	26,027	30,779	34,876	38,904	43,072
AFL	4000K/5000K Lumens	5,166	10,095	15,063	19,903	24,659	29,509	34,898	39,542	44,108	48,835
	3000K Lumens	4,573	8,936	13,334	17,618	21,828	26,121	30,892	35,003	39,044	43,229

* Nominal data for 70 CRI.

Attachment: ADJ GALLEON SPEC SHEET (#18-049: HBE Lighting and Facade Improvements)

NOMINAL POWER LUMENS (600MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K/5000K Lumens	4,029	7,874	11,749	15,525	19,235	23,019	27,222	30,844	34,406	38,093
	3000K Lumens	3,566	6,970	10,400	13,743	17,027	20,376	24,097	27,303	30,456	33,720
T2R	4000K/5000K Lumens	4,278	8,360	12,474	16,482	20,421	24,437	28,900	32,745	36,527	40,441
	3000K Lumens	3,787	7,400	11,042	14,590	18,077	21,632	25,582	28,986	32,334	35,798
T3	4000K/5000K Lumens	4,107	8,026	11,976	15,824	19,605	23,461	27,746	31,438	35,068	38,827
	3000K Lumens	3,636	7,105	10,601	14,007	17,354	20,768	24,561	27,829	31,042	34,370
T3R	4000K/5000K Lumens	4,198	8,205	12,242	16,175	20,041	23,982	28,363	32,137	35,848	39,689
	3000K Lumens	3,716	7,263	10,837	14,318	17,740	21,229	25,107	28,448	31,733	35,133
T4FT	4000K/5000K Lumens	4,131	8,072	12,045	15,915	19,719	23,597	27,907	31,620	35,272	39,052
	3000K Lumens	3,657	7,145	10,662	14,088	17,455	20,888	24,703	27,990	31,223	34,569
T4W	4000K/5000K Lumens	4,077	7,968	11,889	15,710	19,465	23,292	27,546	31,212	34,816	38,547
	3000K Lumens	3,609	7,053	10,524	13,906	17,230	20,618	24,384	27,629	30,819	34,122
SL2	4000K/5000K Lumens	4,022	7,861	11,729	15,498	19,202	22,979	27,175	30,791	34,347	38,028
	3000K Lumens	3,560	6,959	10,383	13,719	16,998	20,341	24,055	27,256	30,404	33,662
SL3	4000K/5000K Lumens	4,106	8,025	11,974	15,821	19,603	23,458	27,742	31,433	35,064	38,821
	3000K Lumens	3,635	7,104	10,599	14,005	17,353	20,765	24,557	27,824	31,039	34,364
SL4	4000K/5000K Lumens	3,902	7,624	11,377	15,033	18,626	22,289	26,359	29,867	33,316	36,886
	3000K Lumens	3,454	6,749	10,071	13,307	16,488	19,730	23,333	26,438	29,491	32,651
5NQ	4000K/5000K Lumens	4,236	8,277	12,351	16,319	20,219	24,196	28,614	32,422	36,166	40,042
	3000K Lumens	3,750	7,327	10,933	14,446	17,898	21,418	25,329	28,700	32,014	35,445
5MQ	4000K/5000K Lumens	4,314	8,429	12,578	16,619	20,591	24,641	29,141	33,019	36,832	40,779
	3000K Lumens	3,819	7,461	11,134	14,711	18,227	21,812	25,796	29,228	32,604	36,098
5WQ	4000K/5000K Lumens	4,325	8,452	12,611	16,664	20,646	24,707	29,219	33,106	36,930	40,888
	3000K Lumens	3,828	7,482	11,163	14,751	18,276	21,871	25,865	29,305	32,690	36,194
SLL/SLR	4000K/5000K Lumens	3,609	7,052	10,522	13,903	17,226	20,613	24,378	27,622	30,812	34,114
	3000K Lumens	3,195	6,242	9,314	12,307	15,248	18,247	21,579	24,451	27,275	30,198
RW	4000K/5000K Lumens	4,197	8,202	12,239	16,171	20,036	23,977	28,356	32,129	35,839	39,680
	3000K Lumens	3,715	7,260	10,834	14,315	17,736	21,224	25,101	28,441	31,725	35,125
AFL	4000K/5000K Lumens	4,213	8,232	12,284	16,230	20,109	24,064	28,459	32,246	35,969	39,824
	3000K Lumens	3,729	7,287	10,874	14,367	17,800	21,301	25,192	28,544	31,840	35,252

* Nominal data for 70 CRI.

Attachment: ADJ GALLEON SPEC SHEET (#18-049: HBE Lighting and Facade Improvements)

CONTROL OPTIONS**0-10V (DIM)**

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (P, R and PER7)

Optional button-type photocontrol (P) and photocontrol receptacles (R and PER7) provide a flexible solution to enable “dusk-to-dawn” lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

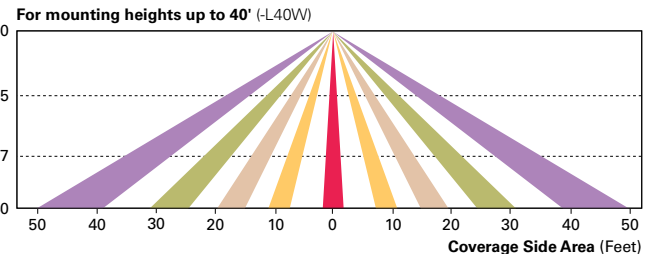
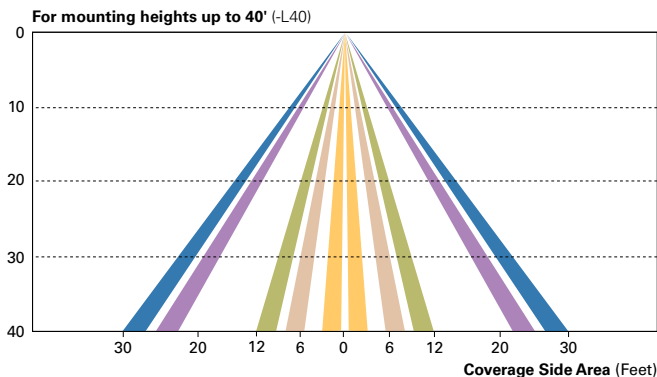
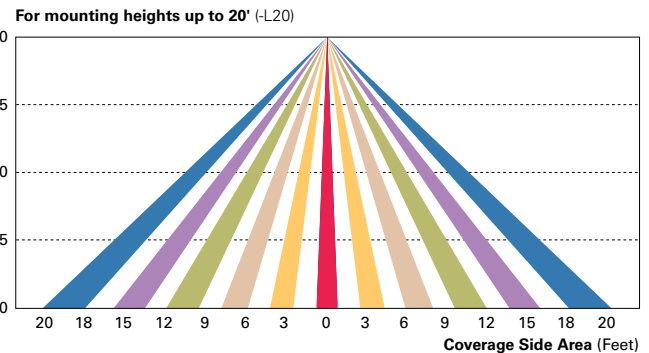
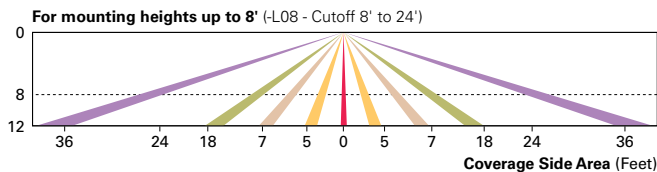
After Hours Dim (AHD)

This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a “dusk-to-dawn” period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

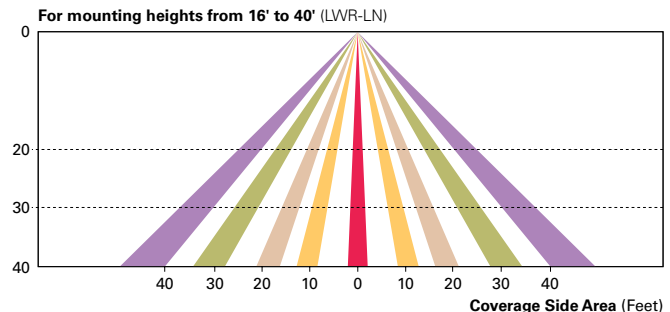
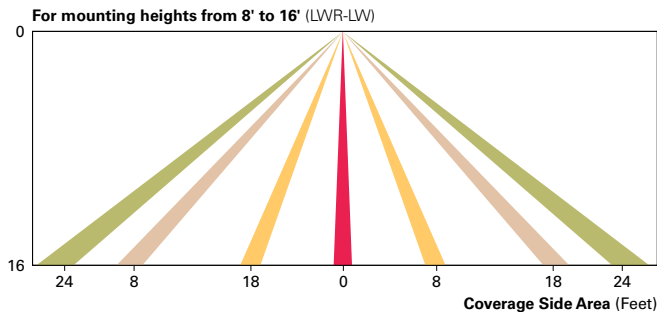
Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)

These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for “dusk-to-dawn” control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters. A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.

**LumaWatt Pro Wireless Control and Monitoring System (LWR-LW and LWR-LN)**

The Eaton's LumaWatt Pro powered by Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting.

**WaveLinX Wireless Outdoor Lighting Control Module (WOLC-7P-10A)**

The 7-pin wireless outdoor lighting control module enables WaveLinX to control outdoor area, site and flood lighting. WaveLinX controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

ORDERING INFORMATION

Sample Number: GLEON-AF-04-LED-E1-T4FT-GM-ADJS-800

Product Family ^{1,2}	Light Engine	Number of Light Squares ³	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	AF=1A Drive Current	01=1 02=2 03=3 04=4 05=5 06=6 07=7 08=8 09=9 10=10	LED=Solid State Light Emitting Diodes	E1=120-277V 347=347V ⁴ 480=480V ^{4,5}	T2=Type II T2R=Type II Roadway T3=Type III T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I AFL=Automotive Frontline	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White	ADJA=Adjustable Arm - Direct Pole Mount ⁶ ADJS=Adjustable Arm - Slipfitter ⁶ ADJA-WM=Adjustable Arm - Wall Mount ⁶
Options (Add as Suffix)					Accessories (Order Separately)		
7030=70 CRI 3000K ⁷ 8030=80 CRI 3000K ⁸ 7050=70 CRI 5000K ⁷ 7060=70 CRI 6000K ⁷ 600=Drive Current Factory Set to Nominal 600mA ⁹ 800=Drive Current Factory Set to Nominal 800mA ⁹ 1200=Drive Current Factory Set to Nominal 1200mA ¹⁰ F=Single Fuse (120, 277 or 347V. Must Specify Voltage) FF=Double Fuse (208, 240 or 480V. Must Specify Voltage) 2L=Two Circuits ^{11,12} DIM=External 0-10V Dimming Leads P=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) PER7=NEMA 7-PIN Twistlock Photocontrol Receptacle R=NEMA Twistlock Photocontrol Receptacle AHD145=After Hours Dim, 5 Hours ¹³ AHD245=After Hours Dim, 6 Hours ¹³ AHD255=After Hours Dim, 7 Hours ¹³ AHD355=After Hours Dim, 8 Hours ¹³ HA=50°C High Ambient ¹⁴ MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height ^{15,16} MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height ^{15,17} MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height ^{15,18} MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height (Wide Range) ^{15,19} MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height ^{15,16,20} MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height ^{15,17,20} MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height ^{15,18,20} MS/X-L40W=Bi-Level Motion Sensor, 21' - 40' Mounting Height (Wide Range) ^{15,19,20} MS-L08=Motion Sensor for ON/OFF Operation, Maximum 8' Mounting Height ^{15,16} MS-L20=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height ^{15,17} MS-L40=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height ^{15,18} MS-L40W=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height (Wide Range) ^{15,19} LWR-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height ²¹ LWR-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height ²¹ L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right MT=Factory Installed Mesh Top TH=Tool-less Door Hardware LCF=Light Square Trim Plate Painted to Match Housing ²² HSS=Factory Installed House Side Shield ²³					OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V OA/RA1013=Photocontrol Shorting Cap OA/RA1014=120V Photocontrol MA1252=10kV Surge Module Replacement MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX=2@180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX=3@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX=4@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX=2@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX=3@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX=2@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX=2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX=3@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX=4@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX=2@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX=3@90° Tenon Adapter for 3-1/2" O.D. Tenon FSIR-100=Wireless Configuration Tool for Occupancy Sensor ¹⁵ GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares LS/HSS=Field Installed House Side Shield ^{23,24} WOLC-7P-10A=WaveLinX Outdoor Control Module (7-pin) ²⁵		

NOTES:

- DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
- Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
- Standard 4000K CCT and minimum 70 CRI.
- Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
- Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
- Vibration and IP ratings maintained up to 60° from horizontal.
- Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon LED Flood product page on the website.
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- 1 Amp standard. Use dedicated IES files for 600mA, 800mA and 1200mA when performing layouts. These files are published on the Galleon LED Flood product page on the website.
- Not available with HA option.
- 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in AF-02 through AF-04 requires a larger housing, normally used for AF-05 or AF-06. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
- Not available with LumaWatt wireless sensors.
- Requires the use of P photocontrol or the PER7 or R photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
- 50°C lumen maintenance data applies to 600mA, 800mA and 1A drive currents.
- The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
- Approximately 22' detection diameter at 8' mounting height.
- Approximately 40' detection diameter at 20' mounting height.
- Approximately 60' detection diameter at 40' mounting height.
- Approximately 100' detection diameter at 40' mounting height.
- Replace X with number of Light Squares operating in low output mode.
- LumaWatt wireless sensors are factory installed only requiring network components RF-EM-1, RF-GW-1 and RF-ROUT-1 in appropriate quantities. See www.eaton.com/lighting for LumaWatt application information.
- Not available with house side shield (HSS).
- Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
- One required for each Light Square.
- Requires 7-pin NEMA twistlock photocontrol receptacle.