

THE FLOODGATE APARTMENTS

SAN ANTONIO, TEXAS

CIVIL CONSTRUCTION PLANS

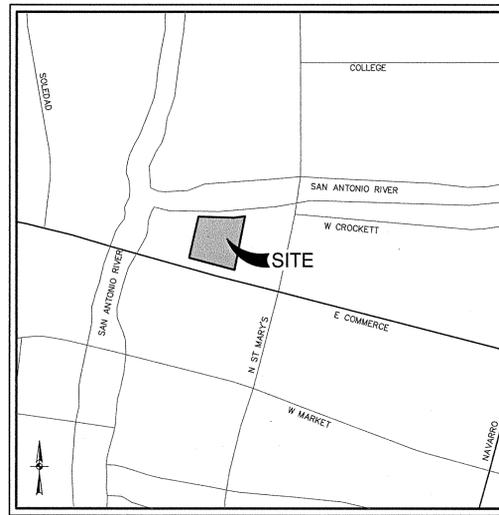
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LOCATION MAP
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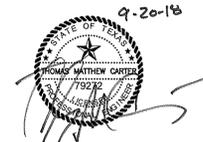
NO.	REVISION	DATE
0	SITE / FOUNDATION PERMIT	09/18/18

PREPARED FOR:
FLOODGATE, LLC
 201 E OLMOS DRIVE
 SAN ANTONIO, TEXAS 78212

SEPTEMBER 2018



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPCE FIRM REGISTRATION #470 | TBPES FIRM REGISTRATION #10028800



The Floodgate Apartments

143 E. COMMERCE ST
San Antonio, TX, 78205

PD PROJECT NUMBER 1216100

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | WOODBRIDGE | FORT WORTH | DALLAS
SODS AND PITS CAN BE ORDERED IN 10' INCREMENTS.
TYPE FROM REGISTRATION 0475 | THIS IS FROM REGISTRATION OF PROJECTS

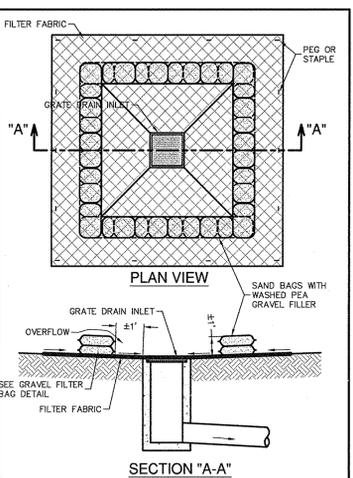


IF THIS DOCUMENT IS NOT SIGNED, SEALED, AND DATED, IT MAY NOT BE USED FOR REGULATORY APPROVAL, PERMIT OR CONSTRUCTION

SITE/FOUNDATION PERMIT

Table with 2 columns: ISSUE DESCRIPTION, DATE. Includes rows for 90% DESIGN DEVELOPMENT (6/15/2018), SITE/FOUNDATION PERMIT (9/16/2018), and SWPPP DETAILS (6/15/2018).

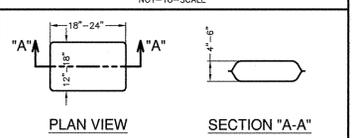
SWPPP DETAILS



GENERAL NOTES

- 1. THE SANDBAGS SHOULD BE FILLED WITH WASHED PEA GRAVEL AND STACKED TO FORM A CONTINUOUS BARRIER ABOUT 1 FOOT HIGH AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
3. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
4. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
5. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
6. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
7. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

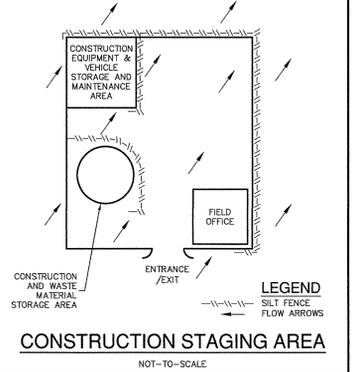
INSPECTION AND MAINTENANCE GUIDELINES



GENERAL NOTES

- 1. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).
2. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.
3. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
4. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
5. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
6. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
7. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

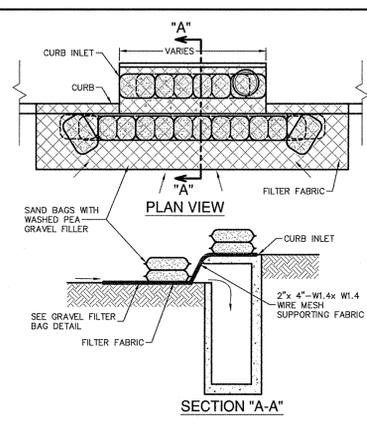
CONSTRUCTION STAGING AREA



THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP-3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP-3 ONLY. ALL OTHER CIVIL, ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

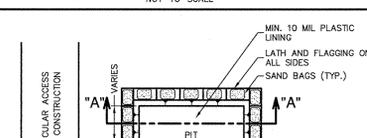
EXHIBIT 3



GENERAL NOTES

- 1. CONTRACTOR TO INSTALL 2"x4"-W1.4xW1.4 WIRE MESH SUPPORTING FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
3. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
4. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
5. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
6. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
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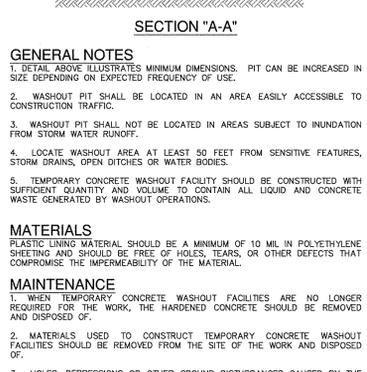
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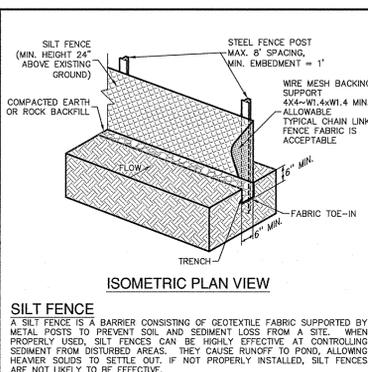
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EXHIBIT 3



SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.
THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERMEATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.
SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGEWAYS SHOULD NOT BE MOVED AT ANY TIME.

MATERIALS

- 1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. Sieve NUMBER 30.
2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINELL HARDNESS EXCEEDING 140.
3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.
4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS. WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSTALLATION

- 1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".
4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH THE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE MEET. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.

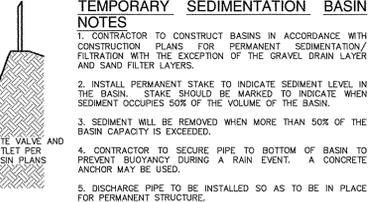
COMMON TROUBLE POINTS

- 1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.
2. FABRIC NOT SEALED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).
3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).
4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).
5. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).
6. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

INSPECTION AND MAINTENANCE GUIDELINES

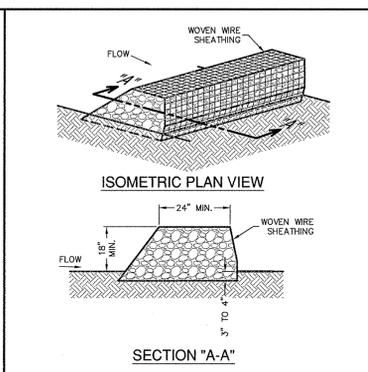
- 1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.
2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.
4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER ONE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL



CONCRETE TRUCK WASHOUT PIT DETAIL

NOT-TO-SCALE



ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW. TO WATER IN SHEET FLOW, THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.
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MATERIALS

- 1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOT RINGS.
2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.
3. REPAIR ANY LOOSE WIRE SHEATHING.
4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS. WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSTALLATION

- 1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.
2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.
3. MOW WHEN THE SOD IS ESTABLISHED - IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").
4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH THE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE MEET. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
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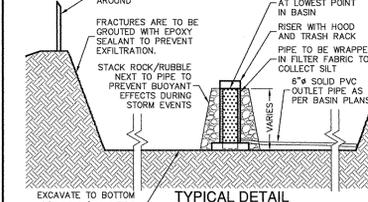
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3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).
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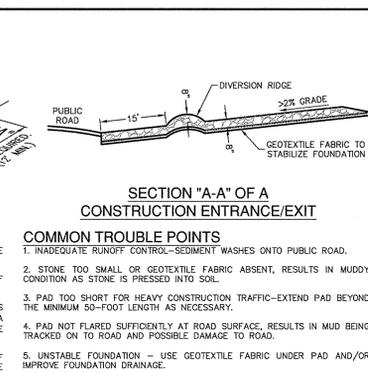
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SILT FENCE DETAIL



CONCRETE TRUCK WASHOUT PIT DETAIL

NOT-TO-SCALE



SECTION 'A-A' OF A CONSTRUCTION ENTRANCE/EXIT

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MATERIALS

- 1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD, A MULLEN BURST RATING OF 140 LB/IN2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4-INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

- 1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBSTRUCTIONAL MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF ROADWAY, WHICHEVER IS GREATER.
3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-INCHES TO 8-INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION, APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER POUND ROAD DRAINAGE.

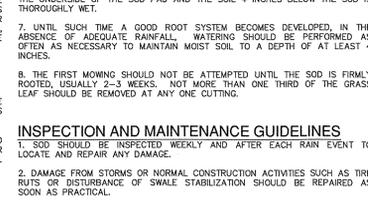
COMMON TROUBLE POINTS

- 1. INADEQUATE RUNOFF CONTROL--SEDIMENT WASHES ONTO PUBLIC ROAD.
2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.
3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC--EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.
4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.
5. UNSTABLE FOUNDATION - USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

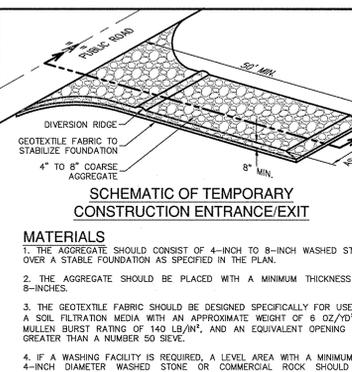
- 1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL



STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE



SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW. TO WATER IN SHEET FLOW, THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

MATERIALS

- 1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD, A MULLEN BURST RATING OF 140 LB/IN2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
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INSTALLATION

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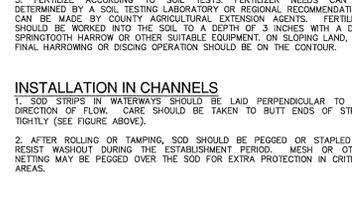
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2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
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STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL



STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE

SOD INSTALLATION DETAIL



NOT-TO-SCALE

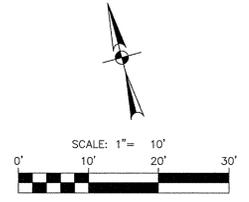
ADDRESS
143 E. COMMERCE ST.
SAN ANTONIO, TX 78205

LEGAL DESCRIPTION
LOT 37
N.C.B. 106

PLAT
170130



LOCATION MAP
NOT-TO-SCALE

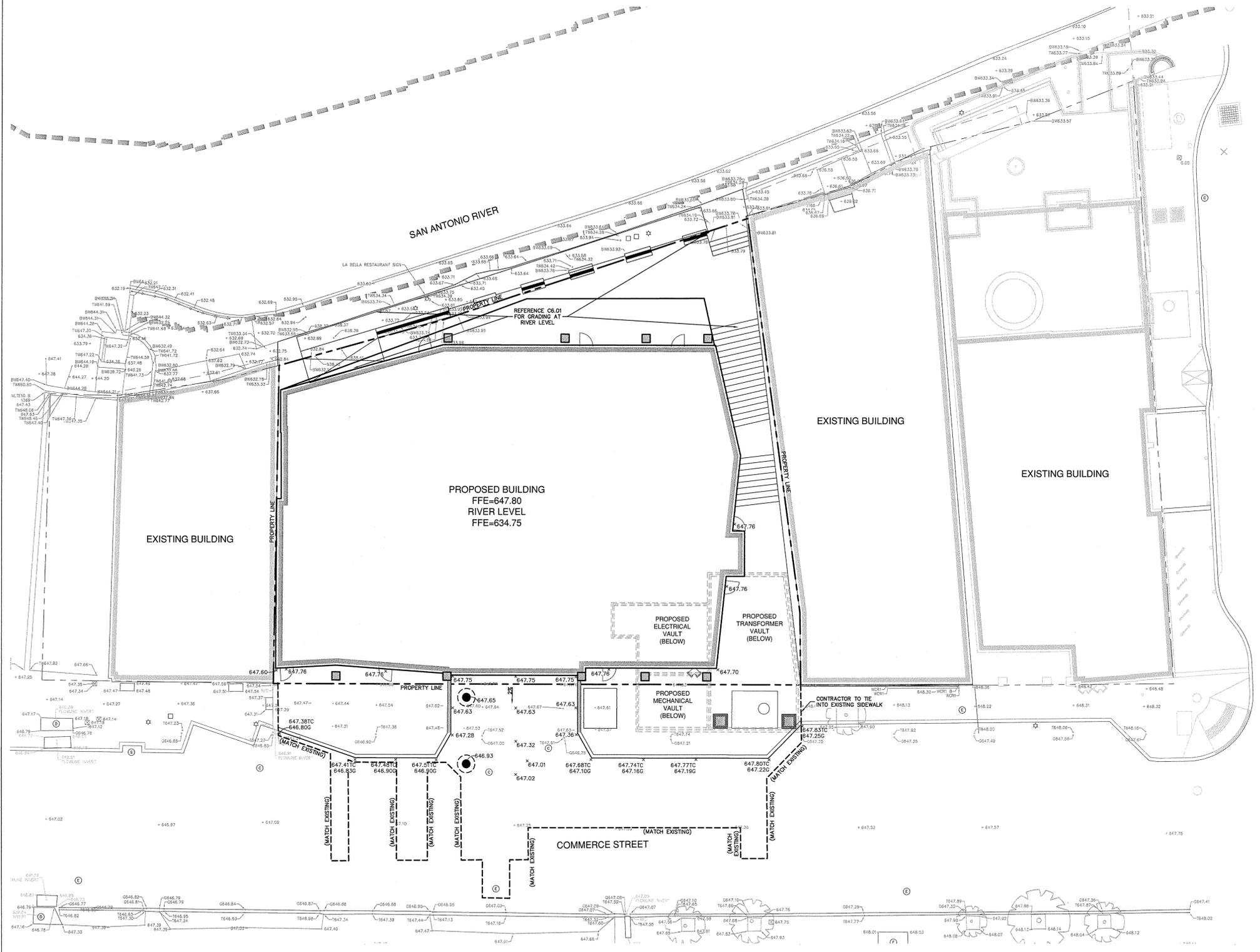


LEGEND

PROPERTY LINE	---
EXISTING CURB	---
PROPOSED STANDARD CURB	---
PROPOSED HEADER CURB	---
EXISTING CONTOURS	---
PROPOSED CONTOURS	---
PROPOSED SPOT ELEVATIONS	+885.00
EXISTING SPOT ELEVATION	+885.00
PROPOSED BUILDINGS	---
PROPOSED VAULT BELOW GRADE	---
PROPOSED FLOOR ABOVE GRADE	---
PROPOSED WALL	---

GRADING NOTES:

- ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TxDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).
- SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.
- ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.
- ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
- THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
- THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
- THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE. THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL, CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.
- THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TYPICAL SWPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TYPES BOOK).
- THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/- ONE-TENTH (0.10) FOOT.
- IN PROPOSED PAVING AREAS, IT IS INTENDED THAT THE MINIMUM GRADE IS 1%. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1:0% UNLESS OTHERWISE SHOWN.
- THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.
- UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.
- POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
- FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.
- NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.



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SUITE 1600
AUSTIN, TEXAS 78701
(512) 473-0923
www.rhodepartners.com
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The Floodgate Apartments

143 E. COMMERCE ST
San Antonio, TX, 78205

PD PROJECT NUMBER 11219-00

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RHODE PARTNERS INC.
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Kris Swanson

CIVIL ENGINEER
Page-Dawson Engineers
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(210) 375-5010
Chris Orem

MEP ENGINEER
Schmid & Stacy
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Highway 101
San Antonio, Texas 78223
Ciff Pawelek

RESIDENTIAL DESIGNER
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201 E. Chisos Drive
San Antonio, Texas 78212
Keller Henderson

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78212 | 210.375.3600
TYPED FROM REGISTRATION #4971 | TYPED FROM REGISTRATION #102800



IF THIS DOCUMENT IS NOT SIGNED, SEALED, AND DATED, IT MAY NOT BE USED FOR REGULATORY APPROVAL, PERMIT OR CONSTRUCTION

SITE/FOUNDATION PERMIT

100% DESIGN DEVELOPMENT	6/15/2018
SITE/FOUNDATION PERMIT	9/18/2018
ISSUE DESCRIPTION	6/15/2018

GRADING PLAN STREET LEVEL

C6.00

DATE: Sep 18, 2018, 11:32am, User: ch...
File: P:\11219\00_Design\CA\GR-1121900.dwg

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GENERAL NOTES:

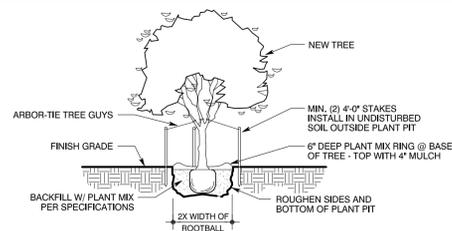
1. REFER TO SPECIFICATIONS FOR ALL CONTRACT PLANTING.
2. INSTALL APPROVED IMPORTED PLANTING MIX TO MIN. DEPTH OF 6" IN ALL AREAS SCHEDULED AS LANDSCAPE PLANTING AREAS.
3. INSTALL APPROVED IMPORTED TOPSOIL TO 4" DEPTH IN ALL TURFGRASS AREAS.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES IN THE FIELD PRIOR TO INSTALLATION AND MUST REPORT ANY DEVIATION IN SITE CONDITIONS TO THE LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH WORK IN THE AFFECTED AREA.
5. WHERE SHOWN ON THESE PLANS, UTILITY INFORMATION IS PROVIDED FOR REFERENCE ONLY. REF. CIVIL AND MEP PLANS FOR ALL UTILITY INFORMATION.
6. VERIFY LOCATION AND DEPTH OF ALL EXISTING AND PROPOSED UTILITIES PRIOR TO ANY EXCAVATION. IN THE EVENT POTENTIAL CONFLICT(S) OCCUR BETWEEN UTILITIES AND LANDSCAPE IMPROVEMENTS, IMMEDIATELY CEASE WORK IN THE AFFECTED AREA, REPORT THE CONFLICT(S) TO THE OWNER'S REPRESENTATIVE, AND DO NOT PROCEED UNTIL RECEIPT OF SPECIFIC WRITTEN DIRECTION.

URBAN DEER NOTES:

1. AT THE TIME THESE DOCUMENTS WERE PREPARED THE LANDSCAPE ARCHITECT WAS NOT AWARE OF A LOCAL URBAN DEER POPULATION.
2. IN THE EVENT AN URBAN DEER POPULATION IS DISCOVERED, CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTING ALL NEWLY-INSTALLED PLANTS THROUGH THE 30-DAY MAINTENANCE PERIOD.
3. APPLY "LIQUID FENCE" (OR APPROVED EQUAL) TO ALL PLANTS AS NEEDED TO DISCOURAGE BROWSING BY DEER.
4. ANY NEWLY-INSTALLED PLANTS EATEN OR BROWSED BY DEER PRIOR TO THE EXPIRATION OF THE 30-DAY MAINTENANCE PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.

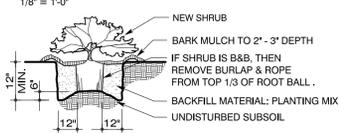
OVERHEAD ELECTRIC NOTES:

1. ALL PROPOSED LARGE SPECIES TREES (AS DEFINED BY THE UNIFIED DEVELOPMENT CODE IN EFFECT HEREOF) SHALL BE PLANTED NO CLOSER THAN 20' TO ALL OVERHEAD ELECTRIC UTILITY LINES.
2. CONTRACTOR IS SOLELY RESPONSIBLE FOR FIELD LOCATING ALL OVERHEAD ELECTRIC UTILITY LINES AND ENSURING THAT NO LARGE SPECIES TREES ARE PLANTED WITHIN 20' OF ANY OVERHEAD ELECTRIC UTILITY LINES.
3. WHERE CITY INSPECTORS FIND ANY PROPOSED LARGE SPECIES TREES TO BE IN VIOLATION OF PROXIMITY TO OVERHEAD ELECTRIC UTILITY LINES, THE CONTRACTOR SHALL RELOCATE TREES AT NO ADDITIONAL COST TO THE OWNER.



TREE PLANTING DETAIL

NEW TREES
1/8" = 1'-0"



SHRUB PLANTING DETAIL

NEW SHRUBS
1/8" = 1'-0"

PLANT SCHEDULE					SIZE = CALIPER OR SPREAD	
SYM.	SCIENTIFIC NAME	COMMON NAME	HGT.	SIZE	CONDITION	REMARKS
TREES						
ST	Sabal mexicana	TEXAS SABAL PALM	8' CTH		B and B	SPECIMEN QUALITY, SINGLE STEM. SUPPLIED BY THE PALM BUDDHA, (210) 771-8432. NO SUBSTITUTIONS.
SHRUBS						
AZ	Alpinia zerumbet 'Variegata'	VARIEGATED GINGER	-	3 GAL.		PERENNIAL / PLANT @ 24" O.C.
LVG	Liriope muscari 'Variegated Giant'	AZTEC GRASS	-	1 GAL.		EVERGREEN / PLANT @ 24" O.C.
PS	Philodendron selloum	PHILODENDRON	-	5 GAL.		EVERGREEN / PLANT AT 3'-0" O.C.

LANDSCAPE ORDINANCE COMPLIANCE

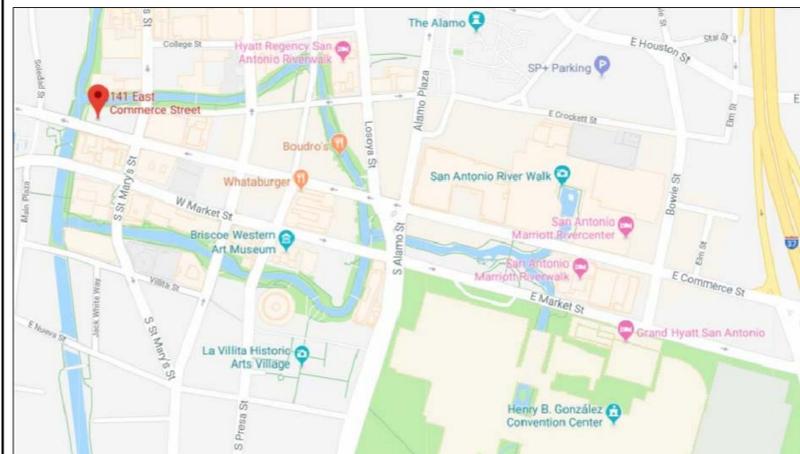
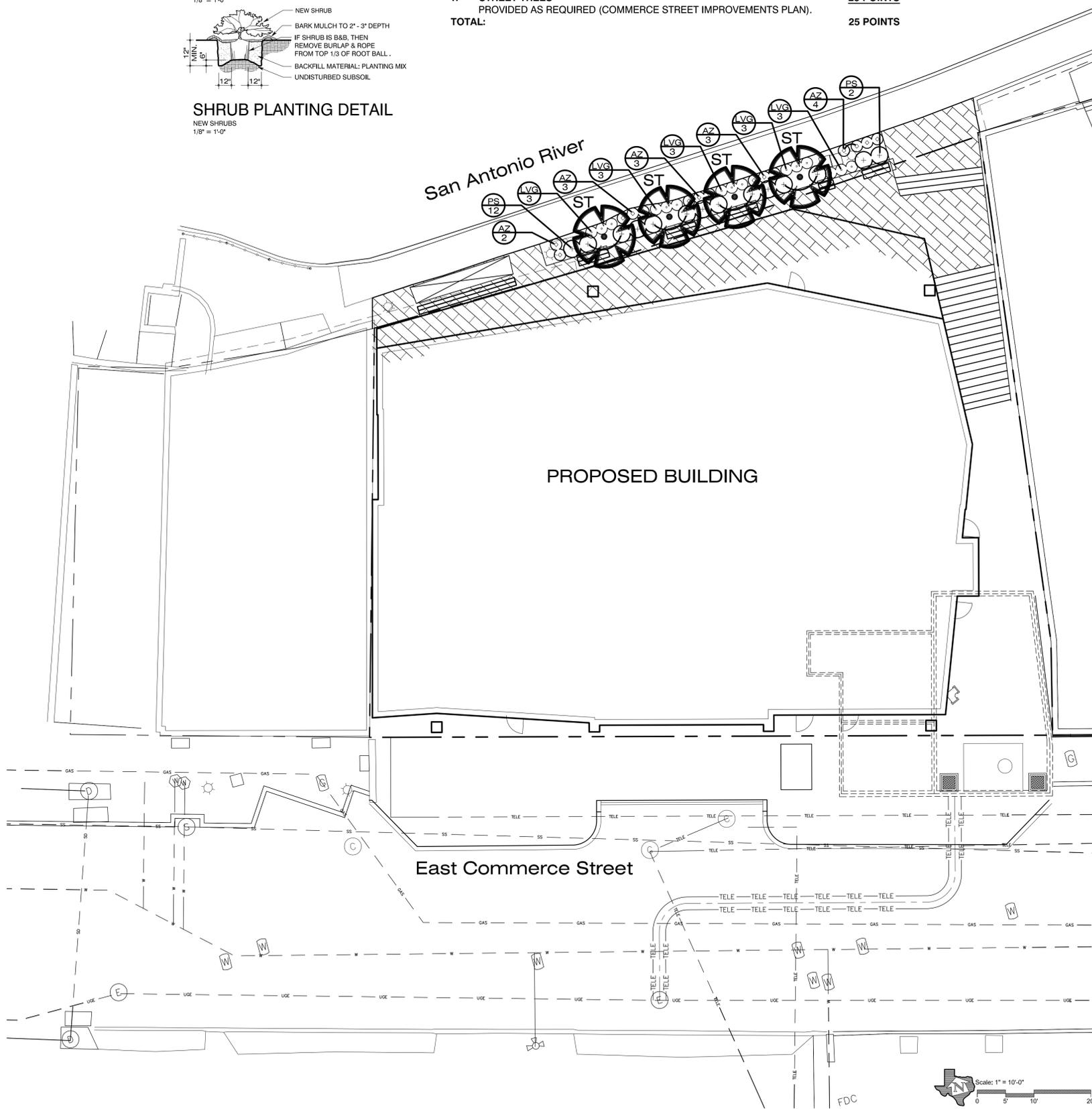
25 POINT MINIMUM (NO PARKING WITHIN THE STREET YARD)

1. **STREET TREES**
PROVIDED AS REQUIRED (COMMERCE STREET IMPROVEMENTS PLAN).

25 POINTS

TOTAL:

25 POINTS



VICINITY MAP (N.T.S.)



9/10/18
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OWNER
Floodgate, LLC

201 E. Olmos Dr.
San Antonio TX 78212

PROJECT
The Floodgate Apartments

141 E. Commerce
San Antonio TX 78205

REVISIONS

PROJECT NUMBER
2018-112

Drawn By: jr
Checked By: jr

Sheet Title:
LANDSCAPE ORDINANCE COMPLIANCE PLAN

Sheet Number:

L1.0

Issue Date:
September 10, 2018

EXISTING PROTECTED TREE INVENTORY

September 10, 2018

TAG#	SPECIES	SIZE	LARGE SPECIES			SMALL SPECIES			PROTECTED CAL. INCHES	COMMENTS
			SIGNIFICANT PRESERVED	SIGNIFICANT REMOVED	HERITAGE PRESERVED	HERITAGE REMOVED (3:1)	HERITAGE REMOVED (1:1)	SIGNIFICANT PRESERVED		
1378	Elm	13								
1379	Elm	14		14						
1380	Fig	6						6	Offsite, Removed	
TOTALS		33	0	27	0	0	0	6		

TREE PRESERVATION SUMMARY

TOTAL CAL. INCHES ON-SITE:	33
SIGNIFICANT CAL. INCHES ON-SITE:	27
Significant Cal. Inches Preserved:	0
Significant Cal. Inches Exempt:	6
Significant Class Preservation Ratio:	0.00%
Required Significant Preservation Ratio:	40%
Significant Class Excess / (Mitigation):	(10.8)
HERITAGE CAL. INCHES ON-SITE:	0
Heritage Cal. Inches Removed (3:1):	0
Heritage Cal. Inches Removed (1:1):	0
Heritage Class Excess / (Mitigation), 3:1	0.0
Heritage Class Excess / (Mitigation), 1:1	0.0
Significant Class Excess / Mitigation:	(10.8)
TOTAL EXCESS / (MITIGATION)	(11)

TREE MITIGATION SUMMARY

MITIGATION REQUIRED PER TREE INVENTORY:

PLUS REMOVAL OF 6" OFFSITE FIG TREE:

TOTAL MITIGATION REQUIRED:

X \$200 PER CAL. INCH = PAYMENT TO CITY TREE FUND:

11 CAL. INCHES

6 CAL. INCHES

17 CAL. INCHES

\$3400.00

TREE CANOPY ORDINANCE COMPLIANCE

PROJECT SITE AREA = 10,142 SF x 25% = 2535.5 SF TREE CANOPY REQUIRED

DIVID BY 788 SF PER TREE = TOTAL TREES REQUIRED:

x 1.5 CAL. INCH PER TREE = TOTAL MITIGATION DUE:

x \$200 PER CAL. INCH = PAYMENT T CITY TREE FUND:

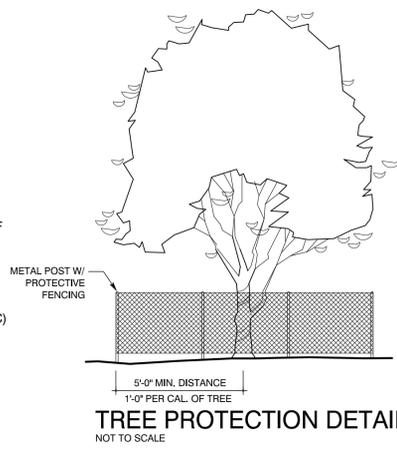
3.2

4.8 CAL. INCHES

\$960.00

EXISTING TREE PRESERVATION AND REMOVAL NOTES:

- UNLESS OTHERWISE SPECIFICALLY INDICATED, THIS DOCUMENT SHOWS ONLY EXISTING PROTECTED-SIZE TREES AS DEFINED BY THE CITY OF SAN ANTONIO UNIFIED DEVELOPMENT CODE (THE "UDC") IN EFFECT ON THE DATE HEREOF.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR INSPECTING THE PROJECT SITE AND DETERMINING FOR HIMSELF IF OTHER EXISTING TREES, SHRUBS, OR VEGETATION ARE PRESENT WHICH MUST BE REMOVED IN ORDER TO CONSTRUCT THE IMPROVEMENTS PROPOSED HEREBY.
- BY ACT OF SUBMITTING A BID TO REMOVE THE EXISTING TREES SHOWN ON THIS PLAN, CONTRACTOR WARRANTS THAT HE (A) HAS PERSONALLY VISITED THE PROJECT SITE, (B) HAS INVESTIGATED THE EXISTING CONDITIONS SUFFICIENTLY TO DETERMINE WHAT, IF ANY, ADDITIONAL EXISTING TREES, SHRUBS, AND VEGETATION MUST BE REMOVED IN ORDER TO CONSTRUCT THE IMPROVEMENTS PROPOSED HEREBY, AND (C) HAS A CLEAR UNDERSTANDING OF THE TERMS "PROTECTED TREE, SIGNIFICANT TREE, HERITAGE TREE, AND FLOOD PLAIN, AND OF ANY OTHER CITY GUIDELINES, STANDARDS, AND REQUIREMENTS WHICH MAY IMPACT REMOVAL OF THE EXISTING TREES DEPICTED ON THIS PLAN.
- IN THE EVENT CONTRACTOR ENCOUNTERS ADDITIONAL EXISTING TREES, SHRUBS, AND VEGETATION NOT SHOWN ON THIS PLAN, BUT WHICH MUST REASONABLY BE REMOVED IN ORDER TO CONSTRUCT THE IMPROVEMENTS PROPOSED HEREBY, CONTRACTOR SHALL REMOVE THE ADDITIONAL EXISTING TREES, SHRUBS, AND VEGETATION AT NO ADDITIONAL COST TO THE OWNER, SUBJECT TO ANY APPLICABLE REQUIREMENTS, GUIDELINES, STIPULATIONS, OR APPROVALS ENFORCED BY THE CITY OF SAN ANTONIO.

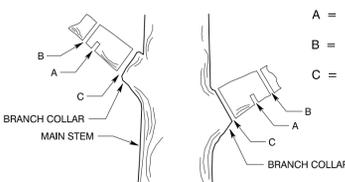


TREE PROTECTION DETAIL
NOT TO SCALE

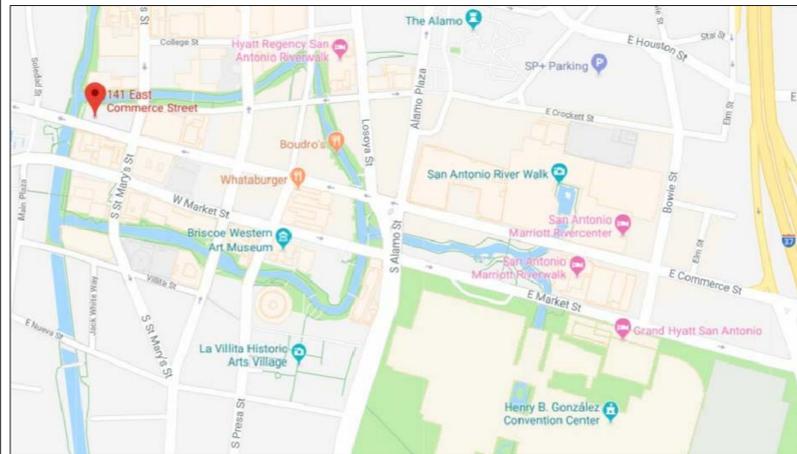
- NOTES:**
- LANDSCAPE SUBCONTRACTOR TO PROVIDE PRUNING AND FERTILIZATION FOR ALL EXISTING TREES TO BE PRESERVED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED AND I.S.A. CERTIFIED ARBORIST.
 - APPLY APPROVED SLOW-RELEASE FERTILIZER INJECTED INTO SOIL BEFORE CONSTRUCTION COMMENCES AND AGAIN AFTER CONSTRUCTION IS COMPLETE.
 - ALL PRUNING OF EXISTING TREES MUST COMPLY WITH THE CITY OF SAN ANTONIO'S APPROVED PRUNING DETAIL AND IS TO BE DONE UNDER THE FIELD DIRECTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT.
 - PROTECTIVE FENCING MUST BE IN PLACE BEFORE ANY CONSTRUCTION ACTIVITIES MAY COMMENCE.
 - PROTECTIVE FENCING TO BE A MIN. 4'-0" HT. EXTENDING FROM TRUNK 12" PER CALIPER INCH OF TREE (MINIMUM 5'-0" ON ONE SIDE ONLY). THE OPTIMUM DISTANCE IS TO INSTALL FENCE DIRECTLY BENEATH DRIPLINE OF TREE AS SHOWN.
 - PROTECTIVE FENCING TO BE STAKED IN FIELD BY CONTRACTOR AND APPROVED BY OWNER AND/OR LANDSCAPE ARCHITECT.
 - DURING CONSTRUCTION, NO EXCESS SOIL, FILL MATERIAL, EQUIPMENT, LIQUIDS, OR CONSTRUCTION DEBRIS SHALL BE PLACED WITHIN THE PROTECTIVE FENCING. NOR SHALL ANY SOIL BE REMOVED FROM WITHIN THE FENCING.
 - APPLY COARSE GROUND OR SHREDDED ORGANIC BARK MULCH TO 6" DEPTH @ ALL EXISTING TREES TO BE PRESERVED.
 - THE PROPOSED FINISH GRADE WITHIN THE ROOT PROTECTION ZONE ("RPZ") OF ANY TREE TO BE PRESERVED SHALL NOT BE RAISED OR LOWERED MORE THEN THREE (3) INCHES.

PRUNING NOTES:

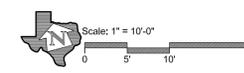
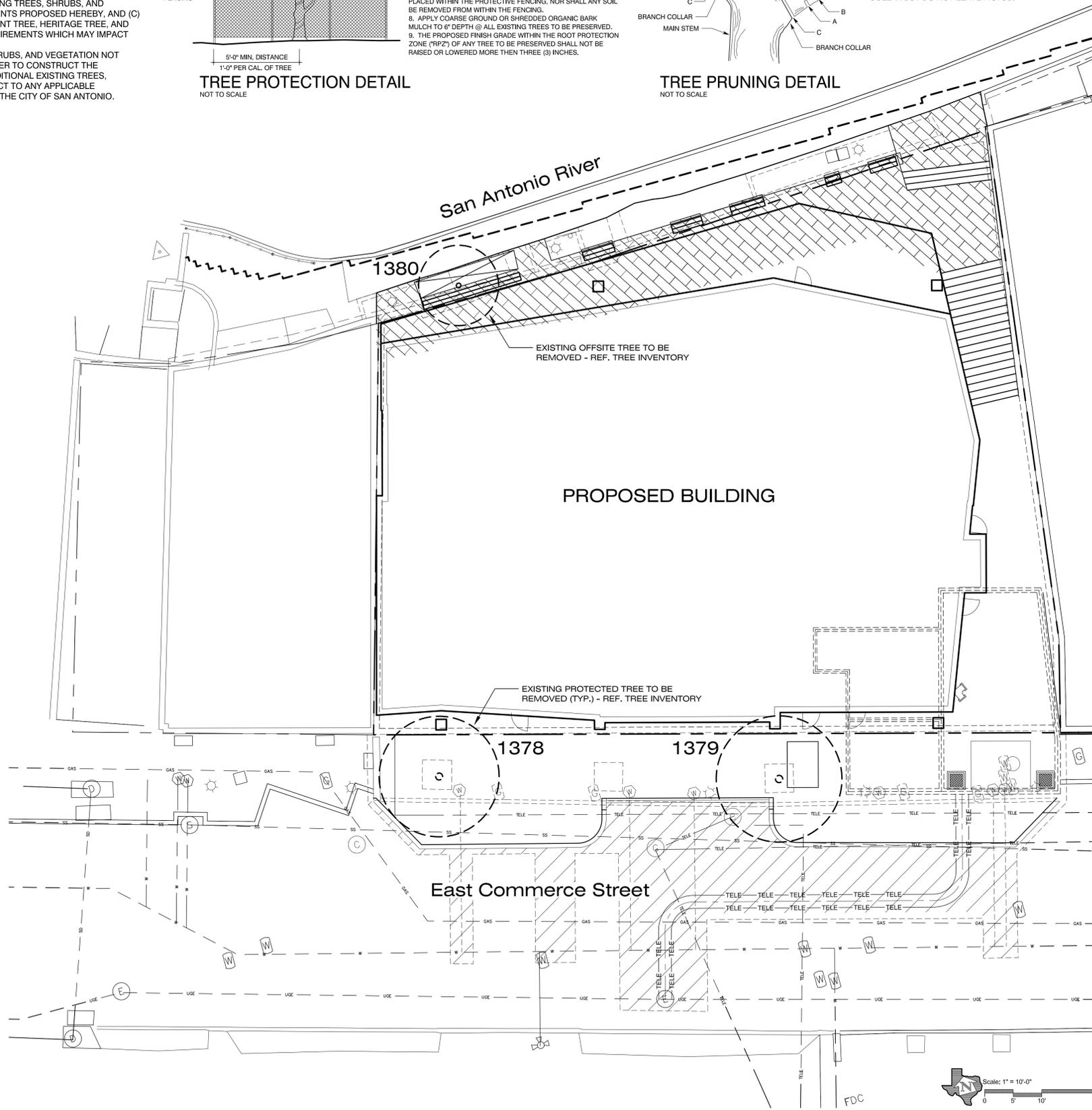
- ALL PRUNING IS TO BE DONE BY A LICENSED ARBORIST UNDER THE FIELD DIRECTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT.
- WHERE FEASIBLE, PRUNE TREES BEFORE COMMENCEMENT OF CONSTRUCTION.
- PAINT ALL WOUNDS ON OAK TREES WITHIN 30 MINUTES OF PRUNING.



TREE PRUNING DETAIL
NOT TO SCALE



VICINITY MAP (N.T.S.)



HORIZON DESIGN AND DEVELOPMENT

PLANNING, LANDSCAPE ARCHITECTURE
DEVELOPMENT CONSULTING
14607 San Pedro Ave., Suite 200
San Antonio, Texas 78232
210.831.8564 jrobison@horizondesign-sa.com



9/10/18
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OWNER
Floodgate, LLC

201 E. Olmos Dr.
San Antonio TX 78212

PROJECT
The Floodgate Apartments

141 E. Commerce
San Antonio TX 78205

REVISIONS

PROJECT NUMBER
2018-112

Drawn By: jr
Checked By: jr

Sheet Title:
TREE PRESERVATION PLAN

Sheet Number:

TP1.0

Issue Date:

September 10, 2018

SUMP PUMP SCHEDULE

MARK	SUMP PUMP ESP-1	SUMP PUMP ESP-2
LOCATION	ELEVATOR PIT	ELEVATOR PIT
DISCHARGE	2"	1-1/2"
GPM	100	50
HEAD FT.	20'	20'
MOTOR	HP	1.5
	RPM	3450
	VOLT	120
PH	1	1
MANUFACTURER	BARNES	BARNES
MODEL	SP50	SP50
REMARKS	PROVIDE WITH AUTOMATIC CONTROLS AND PROVIDE WITH OIL SENSOR. SEE WATER OIL SMART SYSTEM MODEL OSSIM-30 SIMPLEX ALARM PANEL. SINGLE PHASE NEMA 4 SIMPLEX ALARM PANEL W/PUMP CONTROLLER AND LIQUID SMART SENSOR 0-3HP 277V	PROVIDE WITH AUTOMATIC CONTROLS AND PROVIDE WITH OIL SENSOR. SEE WATER OIL SMART SYSTEM MODEL OSSIM-30 SIMPLEX ALARM PANEL. SINGLE PHASE NEMA 4 SIMPLEX ALARM PANEL W/PUMP CONTROLLER AND LIQUID SMART SENSOR 0-3HP 277V

WATER HEATER SCHEDULE

MARK	WH-1	WH-2
CAPACITY	40 GALLONS	50 GALLONS
LOCATION	1 BATH UNIT	2 BATH UNIT
RECOVERY (100° F)	31 GPH	31 GPH
DELIVERY TEMP.	120°	120°
KW/MBH	4.5 KW	4.5 KW
VOLTAGE	277V/1PH	277V/1PH
MANUFACTURER	A.O. SMITH	A.O. SMITH
MODEL	ECL-40	ECL-50
REMARKS		

SEPARATOR SCHEDULE

MARK	DS-1	GB-250
LOCATION	TRASH ROOM	LEVEL 1 MECH ROOM
SIZE	50 GPM	250 GPM
MANUFACTURER	SCHIER	SCHIER
MODEL	DS-50	GB-250
REMARKS	HDP INTERCEPTOR WITH 16 SERIES RISER EXTENSION	HDP INTERCEPTOR WITH 16 SERIES RISER EXTENSION

DUPLIX SEWAGE EJECTOR PUMP SCHEDULE

MARK	SE-1	
LOCATION	LOWER LEVEL	
DISCHARGE	3"	
GPM	200 EACH	
HEAD FT.	45'	
MOTOR	HP	5 EACH
	RPM	1750
	VOLT	208
	PH	3
MANUFACTURER	WEIL	
MODEL	2527	
REMARKS	SUMP PUMP SHALL BE WEIL DUPLIX SUMP PUMP SYSTEM TO CONSIST OF (2) WEIL MODEL 2527 AIR FILLED SUBMERSIBLE QUICK REMOVAL TYPE PUMPS, DOUBLE SEAL CARBON / CERAMIC UPPER SEAL/ SILICON CARBIDE AGAINST SILICON CARBIDE LOWER SEAL, CAST IRON CASE, STAINLESS STEEL HARDWARE, 316 STAINLESS STEEL SHAFT, CAST IRON IMPELLER, CAST IRON MOTOR SHELL WITH CLASS F INSULATION, AND 2 DOUBLE SEALED BALL BEARINGS CAPACITY OF PASSING .5" SOLIDS, 150 GPM EACH PUMP @45" TDH WITH 5HP/1750/208 /3 MOTORS WITH TEMPERATURE SENSORS AND SEAL FAIL SENSORS, (1) WEIL 2616 DUPLIX DISCHARGE VALVE ASSEMBLY, (2) WEIL 2613 QUICK REMOVE ELBOW KITS COMPLETE WITH SUB BASE TO FACILITATE MOUNTING TO THE FLOOR OF THE PIT (CONTRACTOR TO FURNISH FOUR PIECES OF 2" SCHEDULE 40 GALVANIZED PIPE THE DEPTH OF THE PIT TO SERVE AS GUIDE RAILS) (4) MERCURY FLOAT SWITCHES, AND (1) UL LABELED COMBINATION CONTROL PANEL IN A NEMA 3R/50 FRONT ENCLOSURE WITH INNER DOOR TO INCLUDE MAINLINE DISCONNECT WITH THRU-DOOR INTERLOCK, POWER ON LIGHT, (2) MOTOR CIRCUIT PROTECTOR SWITCHES, (1) 120 VOLT CONTROL TRANSFORMER, (2) MAGNETIC CONTACTORS WITH OVERLOAD PROTECTION, (2) H-O-A SELECTOR SWITCHES AND RUN LIGHTS, SEAL FAIL AND OVER TEMP RELAY/ALARM AND LIGHTS FOR EACH PUMP, (1) SOLID STATE ALTERNATOR, (1) TERMINAL STRIP, (1) BUILT IN HIGH WATER ALARM WITH HORN, LIGHT, SILENCE SWITCH, AND DRY CONTACT FOR REMOTE MONITORING, AND (1) WIRING DIAGRAM. FURNISH A (STEEL PLASTICS) - 32" X 52" H20 RATED CAST IN PLACE ACCESS HATCH. BASIN= 60" DIAMETER X 10" DEEP	

DUPLIX SUMP PUMP SCHEDULE

MARK	SP-1	
LOCATION	LOWER LEVEL	
DISCHARGE	3"	
GPM	100	
HEAD FT.	55'	
MOTOR	HP	10 EACH
	RPM	1150
	VOLT	208
	PH	3
MANUFACTURER	WEIL	
MODEL	2525	
REMARKS	SUMP PUMP SHALL BE WEIL DUPLIX SUMP PUMP SYSTEM TO CONSIST OF (2) WEIL MODEL 2525 AIR FILLED SUBMERSIBLE QUICK REMOVAL TYPE PUMPS, DOUBLE SEAL CARBON / CERAMIC UPPER SEAL/ SILICON CARBIDE AGAINST SILICON CARBIDE LOWER SEAL, CAST IRON CASE, STAINLESS STEEL HARDWARE, 316 STAINLESS STEEL SHAFT, CAST IRON IMPELLER, CAST IRON MOTOR SHELL WITH CLASS F INSULATION, AND 2 DOUBLE SEALED BALL BEARINGS CAPACITY OF PASSING .5" SOLIDS, 250 GPM EACH PUMP @55" TDH WITH 10HP/1150/208 /3 MOTORS WITH TEMPERATURE SENSORS AND SEAL FAIL SENSORS, (1) WEIL 2616 DUPLIX DISCHARGE VALVE ASSEMBLY, (2) WEIL 2613 QUICK REMOVE ELBOW KITS COMPLETE WITH SUB BASE TO FACILITATE MOUNTING TO THE FLOOR OF THE PIT (CONTRACTOR TO FURNISH FOUR PIECES OF 2" SCHEDULE 40 GALVANIZED PIPE THE DEPTH OF THE PIT TO SERVE AS GUIDE RAILS) (4) MERCURY FLOAT SWITCHES, AND (1) UL LABELED COMBINATION CONTROL PANEL IN A NEMA 3R/50 FRONT ENCLOSURE WITH INNER DOOR TO INCLUDE MAINLINE DISCONNECT WITH THRU-DOOR INTERLOCK, POWER ON LIGHT, (2) MOTOR CIRCUIT PROTECTOR SWITCHES, (1) 120 VOLT CONTROL TRANSFORMER, (2) MAGNETIC CONTACTORS WITH OVERLOAD PROTECTION, (2) H-O-A SELECTOR SWITCHES AND RUN LIGHTS, SEAL FAIL AND OVER TEMP RELAY/ALARM AND LIGHTS FOR EACH PUMP, (1) SOLID STATE ALTERNATOR, (1) TERMINAL STRIP, (1) BUILT IN HIGH WATER ALARM WITH HORN, LIGHT, SILENCE SWITCH, AND DRY CONTACT FOR REMOTE MONITORING, AND (1) WIRING DIAGRAM. FURNISH A (STEEL PLASTICS) - 32" X 52" H20 RATED CAST IN PLACE ACCESS HATCH. BASIN= 60" DIAMETER X 10" DEEP	

DOMESTIC BOOSTER PUMP SCHEDULE

MARK	BP-1	
LOCATION	1st FLOOR PUMP ROOM ROOM	
SERVICE	DOMESTIC WATER	
TOTAL PEAK LOAD	(2 PUMPS) (65/65% SPLIT)	
MINIMUM SUCTION PRESSURE	35 PSI	
MAXIMUM SUCTION PRESSURE	40 PSI	
REQUIRED DIFFERENTIAL PRESSURE	135 PSI (BOOST)	
MOTOR	HP	15 EACH
	RPM	3500
	VOLT	480
	PH	3
MANUFACTURER	SYNCHERFLO	
MODEL		
ACCESSORIES		
REMARKS		

FIRE PUMP SCHEDULE

MARK	FP-1	
LOCATION	PUMP ROOM	
SERVICE	FIRE PROTECTION	
CAPACITY (GPM)	1000	
REQUIRED DIFFERENTIAL PRESSURE	160 PSI	
MOTOR	HP	200
	RPM	3560
	VOLT	480
	PH	3
MANUFACTURER	AURORA	
MODEL		
ACCESSORIES	CONTROLLER / AUTOMATIC TRANSFER SWITCH / WYE-DELTA STARTER	
REMARKS	FINAL SIZE OF FIRE PUMP BY SPRINKLER CONTRACTOR. IF MAIN RELIEF VALVE IS REQUIRED, EXTEND DISCHARGE TO STORM DRAIN SYSTEM. COORDINATE EXACT CONNECTION POINT W/ CIVIL ENGINEER.	

PIPING MATERIAL SCHEDULE

APPLICATION	SIZE	LOCATION	PIPE MATERIAL
DOMESTIC WATER	2" AND SMALLER	ABOVE GROUND	CPVC PIPE; CPVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.
DOMESTIC WATER	2 1/2" AND LARGER	ABOVE GROUND	HARD COPPER TUBE, ASTM B88, TYPE L; CAST OR WROUGHT COPPER SOLDER-JOINT FITTINGS; AND BRAZED JOINTS.
DOMESTIC WATER	2" AND SMALLER	BELOW GROUND	SOFT COPPER TUBE, SEAMLESS, TYPE K
SOIL/WASTE/VENT	4" AND SMALLER	ABOVE GROUND	HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS; CISPI HUBLESS-PIPING COUPLINGS; AND COUPLED JOINTS.
SOIL/WASTE/VENT	5" AND LARGER	ABOVE GROUND	HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS; CISPI HUBLESS-PIPING COUPLINGS; AND COUPLED JOINTS.
SOIL/WASTE/VENT	4" AND SMALLER	BELOW GROUND	SOLID-WALL SCHEDULE 40 PVC PIPE; PVC SOCKET FITTINGS, AND SOLVENT-CEMENTED JOINTS.
SOIL/WASTE/VENT	5" AND LARGER	BELOW GROUND	SOLID-WALL SCHEDULE 40 PVC PIPE; PVC SOCKET FITTINGS, AND SOLVENT-CEMENTED JOINTS.
GAS	3" AND SMALLER	ABOVE GROUND	SCHEDULE 40 BLACK STEEL PIPE AND SCREWED FITTINGS. PROVIDE CORROSION PROTECTION FOR ALL PORTIONS OF GAS PIPING THAT ARE IN CONTACT WITH EARTH, ATMOSPHERE AND/OR MATERIALS THAT COULD CAUSE CORROSION. PROVIDE IN ACCORDANCE WITH NFPA 54 AND ALL LOCAL REQUIREMENTS.

MINIMUM PIPE CONNECTION SCHEDULE

NAME OF FIXTURE	C.W.	H.W.	TRAP SIZE	WASTE	VENT	REMARKS
WATER CLOSET	1/2"	-	-	4"	2"	FLUSH TANK WITH MAX. 1.28 GALLON FLUSH
SHOWER	1/2"	1/2"	1-1/2"	2"	1-1/2"	MAX. FLOW AT HEAD 1.5 GPM
BATHTUB	1/2"	1/2"	1-1/2"	2"	1-1/2"	
LAVATORY	1/2"	1/2"	1-1/4"	2"	1-1/2"	MAX. FLOW = .5 GPM
COUNTER SINK(KITCHEN)	1/2"	1/2"	1-1/2"	2"	1-1/2"	
BATHTUB W/SHOWER HEAD	1/2"	1/2"	1-1/2"	2"	1-1/2"	
WASHING MACHINE	1/2"	1/2"	1-1/2"	2"	1-1/2"	DOMESTIC CLOTHES WASHER
FLOOR DRAIN	-	-	SEE PLANS	SEE PLANS	2"	UNLESS NOTED OTHERWISE,W/TRAP PRIMER
DOMESTIC DISHWASHER	-	1/2"	-	-	-	UNDERCOUNTER-DISCHARGE TO SINK TRAP
DOMESTIC WATER HEATER	3/4"	3/4"	-	-	-	3/4" T&P DISCHARGE AS NOTED
JANITOR SINK	3/4"	3/4"	3"	3"	2"	FLOOR TYPE

NOTE: ALL THE ABOVE FIXTURES ARE NOT NECESSARILY USED.

PROVIDE/INSTALL THERMOSTATIC MIXING VALVES OR OTHER APPROVED VALVES FOR ALL SHOWERS, COMBINATION TUB/SHOWER. PROVIDE/INSTALL APPROVED LIMITING DEVICE ON SOAK/SPA TUBS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR FIXTURES AND TRIM.



IF THIS DOCUMENT IS NOT SIGNED, SEALED, AND DATED, IT MAY NOT BE USED FOR REGULATORY APPROVAL, PERMIT OR CONSTRUCTION

DESIGN DEVELOPMENT 08/08/16

FOUNDATION PERMIT 09/07/16

ISSUE DESCRIPTION DATE

SCHEDULES - PLUMBING

STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: The design and construction of this project is governed by the "International Building Code (IBC)", 2015 Edition, hereafter referred to as the IBC, as adopted and modified by the City of San Antonio understood to be the Authority Having Jurisdiction (AHJ).

REFERENCE STANDARDS: Refer to Chapter 35 of 2015 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

DEFINITIONS: The following definitions cover the meanings of certain terms used in these notes:

Architect/Engineer – The Architect of Record and the Structural Engineer of Record

- Structural Engineer of Record (SER)** – The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural System.
- Submit for review** – Submit to the Architect/Engineer for review prior to fabrication or construction.
- Per Plan** – Indicates references to the structural plans, elevations and structural general notes.
- Seismic Force Resisting System (SFRS)** – A recognized structural system of components (beams, braces, drags, struts, collectors, diaphragms, columns, walls, etc.) of the primary structure that are specially designed and proportioned to resist earthquake-induced ground motions and maintain stability of the structure. Fabrication and installation of components designated as part of the SFRS require the general contractor, subcontractor, or supplier who is responsible for any portion of SFRS fabrication or installation to comply with special requirements (including, but not limited to, material control, compliance certifications, personnel qualifications, documentation, reporting requirements, etc) and to provide the required Quality Control including the required coordination of Special Inspections (Quality Assurance – QA). Special provisions apply to any member designated as part of the SFRS. Refer to plans, elevations, details, Design Criteria and Symbols and Legends for applicable members and connections.
- Specialty Structural Engineer (SSE)** – A professional engineer (PE or SE), licensed in the State where the project is located, (typically not the SER), who performs specialty structural engineering services for selected specialty-engineered elements identified in the Contract Documents, and who has experience and training in the Specialty. Documents stamped and signed by the SSE shall be completed by or under the direct supervision of the SSE.
- Bidder-Designed** – Components of the structure that require the general contractor, subcontractor, or supplier who is responsible for the design, fabrication and installation of specialty-engineered elements identified in the Contract Documents to be the services of an SSE. Submittals of "Bidder-Designed" elements shall be stamped and signed by the SSE.

SPECIFICATIONS: Refer to the project specifications issued as part of the contract documents for information supplemental to these drawings.

OTHER DRAWINGS: Refer to the architectural, mechanical, electrical, civil and plumbing drawings for additional information including but not limited to dimensions, elevations, slopes, door and window openings, non-bearing walls, stairs, mechanical parking, finishes, drains, waterproofing, railings, curtain walls, elevators, curbs, depressions, mechanical unit locations, and other nonstructural items.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

EXISTING CONDITIONS: Information shown on the drawings related to existing conditions represents the present knowledge, but without guarantee of accuracy. Report conditions that conflict with contract documents to the architect or SEOR. Do not deviate from the contract documents without written direction from the architect and/or SEOR. All existing dimensions and information shall be field verified prior to fabrication as required to coordinate with new construction.

PRE-CONSTRUCTION MEETINGS: The Contractor is responsible for coordinating pre-construction meetings prior to commencing work. Pre-con meetings, scheduled approximately two weeks prior to the start of the relevant work, are required for the following phases of construction: Post-tensioned slabs, Shotcrete, Concrete, Masonry, Demolition. Attendees for pre-construction meeting are to include contractor, relevant subcontractors, fabricators, inspectors, architect/engineer, and representative of the Authority Having Jurisdiction where required. Meeting agendas are to include review of the work scope, project schedule relevant to the work, contact information of responsible parties, inspection points, review of materials and any special cases or issues, procedures for clarifications if required, testing and acceptance, etc.

BRACING/SHORING DESIGN ENGINEER: The contractor shall at his discretion employ an SSE, a registered professional engineer for the design of any temporary bracing and shoring. Submit construction sequence to Architect/Engineer for review.

TEMPORARY SHORING, BRACING: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary shoring, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing/Shoring.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents (architectural / structural / mechanical / electrical or plumbing drawings). Provide documentation of location, load, size and anchorage of all undocumented loads in excess of 400 pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Architect/Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes.

DISCREPANCIES: In case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Architect/Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Architect/Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision from the Architect as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Architect/Engineer before proceeding with the work.

ADJACENT UTILITIES: The contractor shall determine the location of all adjacent underground utilities prior to earth-work, foundations, shoring, and excavation and prior to drilling holes for piers and setback anchors. Any utility information shown on the drawings and details is approximate and not necessarily complete.

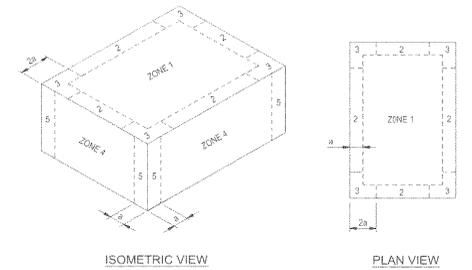
ALTERNATES: Alternate products of similar strength, nature and form for specified items may be submitted with adequate technical documentation (proper test report, etc.) to the Architect/Engineer for review. Alternate materials that are submitted without adequate technical documentation or that significantly deviate from the design intent of materials specified may be returned without review. Alternates that require substantial effort to review will not be reviewed unless authorized by the Owner.

DESIGN CRITERIA AND LOADS

OCCUPANCY:	Risk Category of Building per 2015 IBC Table 1604.5 =	II
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WIND DESIGN:	MAIN WIND FORCE RESISTING SYSTEM	
Ultimate Design Wind Speed, V_{ult} (MPH)		115
Exposure Category		B
Internal Pressure Coefficient	C_{pi} =	+1.0, -1.0
Topographic Factor	K_{zt} =	1.0
Wind Analysis procedure used		Directional

WIND DESIGN: COMPONENTS & CLADDING PRESSURES FOR DESIGN (PSF, ULTIMATE)



a = 9'-0"	EFFECTIVE WIND AREA (SQ. FT)				
	10	20	50	100	500
ZONE 1	-55	-55	-50	-45	-40
ZONE 2	-90	-85	-80	-75	-65
ZONE 3	-120	-115	-105	-100	-90
ZONE 4	40, -40	40, -40	35, -35	33, -35	28, -31
ZONE 5	40, -70	40, -70	35, -62	35, -65	28, -42

- Components and Cladding Wind Pressures are based on ASCE 7-10 Chapter 30 Part 3. Buildings with $h > 60$ ft.
- Components and Cladding zone locations are based on ASCE 7-10 Table 30.2-7 for Flat Roofs $\theta < 10$ deg.
- For parapets around the perimeter of the roof equal to or higher than 3 ft, Zone 3 shall be treated as Zone 2.
- All Parapet Components and Cladding Wind Pressures shall be determined through ASCE 7-10 Figure 30.1-1.

SEISMIC DESIGN	Seismic Design Category:	SDC =	A
	Basic Structural System	Building Frame	
	Seismic Force Resisting System	Ordinary Reinforced Concrete Shear Walls	
	Response Modification Factor	R	5
	System Over Strength Factor	Omega	2.5
	Deflection Amplification Factor	Cd	4.5
	Site Classification per IBC 1613.3.2 & ASCE 7-10, Ch. 20	Site Class	D
	Seismic Importance Factor per ASCE 7-10 Table 1.5-2	ie	1.0
	Spectral Response Acceleration (Short Period)	S_s	0.081 g
	Spectral Response Acceleration (1-Second Period)	S_1	0.030 g
	Spectral Design Response Coefficient (Short Period)	S_{ds}	0.08 g
	Spectral Design Response Coefficient (1-Second Period)	S_{d1}	0.048 g
	Seismic response coefficient(s)	Cs	0.01
	Redundancy Factor	rho	1.0
	Base shear governed by:	wind	
	Seismic Analysis procedure used:	Equivalent Lateral Force (ELF)	

SNOW LOAD (1)	Flat Roof Snow Load, (PSF)	$p_s =$	5 (2)
	Snow Drift Loading required by Authority Having Jurisdiction?	No	
	Snow Load Importance Factor	$I_s =$	1.0 (3)
	Ground Snow Load, (PSF)	$p_g =$	5
	Snow Exposure Factor	$C_e =$	B

- Snow Load is un-reducible and includes 5 psf rain-on-snow surcharge where ground snow load is greater than zero and 20 psf or less per ASCE 7-10 Section 7.10.

DESIGN LIVE LOADS	AREA	LIVE LOADS (PSF) UNIFORM	REMARKS & FOOTNOTES (4)
	See structural loading plans for area loads and line loads. Loads listed below are for miscellaneous items.		
	Handrails & Pedestrian Guardrails	50 PLF or 200 LB	(1)
	Stairs & Exits	100 PSF or 300 LB	Stair treads per note (2). See above for Snow Load
	Facade Access Equipment / Lifeline Supports	2.5 * Rated Hoist Load	per IBC 1607.9.3 and 1607.9.4. 3100 lbs any direction (lifeline)
	Lobbies	100	2000 lbs
	Corridors at First Floor	100	
	Corridors above first Floor	----	Same as occupancy served
	Residential Rooms	40	
	Balconies & Decks	----	1.5 times the live load for area served. Not req'd to exceed 100 psf
	Parking Garage – Passenger Vehicles only	40	3000 lb wheel (4)
	Kitchens	150	Commercial
	Dining Rooms & Restaurants	100	
	Mechanical Rooms	150	
	Light Storage Area	125	
	Heavy Storage Area	250	
	Roofs	20 PSF or 300 LB	Area load is reducible. Point load per note (2). See above for Snow Load
	Roof Decks/Gardens/Assembly	100	Live load (Reducible) is separate from landscape materials.
	Driveways, sidewalks and yards subject to Trucks	250	8000 lb wheel load (4)

- Top rail shall be designed to resist 50 PLF line load or 200 lb point load applied in any direction at any point. Intermediate rails (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 LB on an area not to exceed 1' x 1' square. These three loads are to be considered separately with worst case used for design.
- Place 300 lb concentrated load over 2"x2" area at any point to produce maximum stress. Area load and concentrated load are to be considered separately with worst case used for design.
- Need not apply concurrently with other handrail and guardrail loads, applied over not more than 1 square foot.
- Apply concentrated wheel load over 4-1/2"x4-1/2" square area.

DESIGN DEAD LOADS	BIDDER DESIGN	DEAD LOADS (PSF) UNIFORM	REMARKS & FOOTNOTES
	Mechanical Parking	50 psf	To Be Coordinated

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data are required for items noted in the individual materials sections and for bidder designed elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 WORKING DAYS for review by the Architect/Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Architect/Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Architect/Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed his review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). For hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.

SHOP DRAWING DEVIATIONS: When shop drawings (component design drawings) differ from or add to the requirements of the structural drawings they shall be designed and stamped by the drawee's SSE.

DEFERRED SUBMITTALS

BIDDER-DESIGNED ELEMENTS: Submit "Bidder-Designed" deferred submittals to the Architect and SER for review. The deferred submittals shall also be submitted to the city for approval, if required by the city.

Design of prefabricated, "bidder designed", manufactured, pre-engineered, or other fabricated products shall comply with the following requirements:

- Design considers tributary dead, live, wind and earthquake loads in combinations required by IBC.
- Design within the Deflection Limits noted herein and as specified or referenced in the IBC.
- Design shall conform to the specifications and reference standards of the governing code.
- Submittal shall include:
 - Calculations prepared, stamped and signed by the SSE demonstrating code conformance.
 - Engineered component design drawings are prepared, stamped and signed by the SSE.
 - Product data, technical information and manufacturer's written requirements and Agency approvals as applicable.
- SSE may submit to the Architect/Engineer, a request to utilize relevant alternate design criteria of similar nature and generally equivalent quality which is recognized by the Code and acceptable to the Authority Having Jurisdiction. Submit adequate documentation of design.

DEFLECTION LIMITS FOR SSE / BIDDER DESIGNED ELEMENTS:	VERTICAL	LIMIT
Roof Members, Dead + Live or Snow or Wind, Total Load (TL) Deflection		L / 240, where (L is span length in inches)
Roof, Live or Snow or Wind Load (RLI)		L / 360
Floor Members, Total Load (TL) uno		L / 240
Floor Live Load (LL) uno		L / 360
Members Supporting Brittle Finishes		L / 240 (1)
Members Supporting Flexible Finishes		L / 180 (1)
Interstory Drift		0.020 x Story Height

- Wind Load is reducible to 0.42 times the Component and Cladding Loads per Table 1604.3 footnote f.

GENERAL CONTRACTOR'S PRIOR REVIEW: Once the contractor has completed his review of the SSE component drawings, the SER will review the submittal for general conformance with the design of the building and will stamp the submittal accordingly. Review of the Specialty Structural Engineer's (SSE) shop drawings (component design drawings) is for compliance with design criteria and compatibility with the design of the primary structure and does not relieve the SSE of responsibility for that design. All necessary bracing, ties, anchorage, proprietary products shall be furnished and installed per manufacturer's instructions or the SSE's design drawings and calculations. These elements include but are not limited to:

- Steel Stairs
- Handrails, Guardrails and Balcony Rail Anchorages
- Metal Deck Edge Forms
- Exterior Cladding Systems: Curtain Wall Systems, Pre-engineered Panels
- Roof Mounted Components: Skylights, Hatches
- Facade Access Equipment / Lifeline Supports
- Mechanical, Electrical, Plumbing & Sprinkler Hanger Plans
- Temporary Shoring Systems
- Reshoring for PT Slabs
- Cold-formed Metal Studs - Exterior Wall Assemblies
- Cold-formed Metal Studs - Framing Interior Walls including Partial Height
- Cold-formed Metal Studs & Joists Framing Overhead soffits
- Fountain or pool structures / equipment vaults

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

INSPECTIONS: Foundations, footings, under slab systems and framing are subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

SPECIAL INSPECTIONS, VERIFICATIONS AND TESTS: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17, the STATEMENT AND SCHEDULES OF SPECIAL INSPECTIONS on

STRUCTURAL OBSERVATION: per IBC Section 1704.6

Structural Observation is the visual observation of the structural system by a registered design professional for general conformance to the approved construction documents. It is not always required on a project, does not include or waive the responsibility for that design. All necessary bracing, ties, anchorage, proprietary products shall be furnished and installed per manufacturer's instructions or the SSE's design drawings and calculations. These elements include but are not limited to:

Structural Observation for this project is required per IBC Section 1704.6. Contractor shall notify the SER in a timely manner to allow required Structural Observations to occur. Reports will be distributed to the Architect, the Contractor, Special Inspector and the Authority Having Jurisdiction.

The frequency and extent of observations is at the discretion of the structural observer. Only significant stages of construction identified by the Structural Observer require observation. For repetitive or similar structural elements identified as significant, only the first element of a stage requires observation unless noted otherwise. The following significant stages of construction require observation: prior to shear wall concrete placement prior to first unique mid reinforced slab placement, prior to first unique post-tensioned slab placement.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgment of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and MEP building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRITERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power, exterior wall panels and suspended ceiling systems.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: Conform to IBC Chapter 18 "Soils and Foundations."

GEOTECHNICAL REPORT: Recommendations contained in ASATA116-00 Interim Design Information for Project Floodgate by Rabka Kistner Consultants Inc dated August 31, 2018 were used for design.

CONTRACTOR'S RESPONSIBILITIES: Contractor shall be responsible to review the Geotechnical Report and shall follow the recommendations specified therein including, but not limited to, subgrade preparations, pile installation procedures, ground water management and steep slope Best Management Practices.

GEOTECHNICAL SUBGRADE INSPECTION: The Geotechnical Engineer shall inspect all sub-grades and prepared soil bearing surfaces, prior to placement of foundation reinforcing steel and concrete. Geotechnical Engineers shall provide a letter to the owner stating that soils are adequate to support the "Allowable Foundation Bearing Pressure(s)" shown below.

DESIGN SOIL VALUES:	
Safety Factor per Soils Report	2
Transient Load Capacity Increase	1/3
Design Values:	
Elevation 620 to 608 msf ft.	1.0 ksf Side Shear & 18.0 ksf Axial End Bearing
Elevation 608 to 603 msf ft.	2.0 ksf Side Shear & 53.0 ksf Axial End Bearing
Elevation 603 to 598 msf ft.	2.3 ksf Side Shear & 62.0 ksf Axial End Bearing
Elevation 598 to 583 msf ft.	2.5 ksf Side Shear & 62.0 ksf Axial End Bearing
Elevation below 583 msf ft.	3.0 ksf Side Shear & 62.0 ksf Axial End Bearing
Passive Lateral Pressure	Reference Geotechnical Report
Uplift Force	700 Lb/ft
Uplift side shear resistance	2/3 of value above

FOUNDATIONS AND FOOTINGS: Foundations shall bear on **Drilled Piers** and either on competent native soil or compacted structural fill as per the geotechnical report. Exterior perimeter footings shall bear not less than 18 inches below finish grade, unless otherwise specified by the geotechnical engineer and/or the building official.

FOOTING DEPTH: Tops of footings shall be as shown on plans with vertical changes as indicated with steps in the footings, locations of steps shown as approximate and shall be coordinated with the civil grading plans.

SLABS-ON-GRADE: All slabs-on-grade shall bear on compacted structural fill of competent native soil per the geotechnical report. All moisture sensitive slabs-on-grade or those subject to receive moisture sensitive coatings/covering shall be provided with an appropriate capillary break and vapor barrier/retardant over the subgrade prepared and installed as noted in the geotechnical report, barrier manufacturer's written recommendations and coordinated with the finishes specified by the Architect.

UNDERPINNING: Underpinning of adjacent structures shall be installed in a sequential manner that protects the neighboring structures and the working construction site. Underpinning design and sequencing is the responsibility of the contractor. Sequence of installation must be shown on approved deferred submittal permit drawings.

DRILLED PIERS

REFERENCE STANDARDS: Conform to:

- IBC Section 1810.
- ACI 301 "Standard Specifications for Structural Concrete"

SUBMITTALS: Conform to ACI 301 Section 3.1.1 "Submittals, Data, and Drawings." Submit the following items for review:

- Reinforcing fabrication drawings showing reinforcement size, configuration and grade.
- Concrete mix design.
- Concrete strength test results.

MATERIALS: Conform to notes for CONCRETE REINFORCEMENT and CAST-IN-PLACE CONCRETE, this sheet.

Concrete STRENGTH: Use minimum 5000 psi mix.

LOAD TEST: Pile lengths and capacity shall be validated by Load Test determined and verified at the site by the geotechnical engineer.

SIZE: Pier shape shall be as noted on the foundation drawings. The estimated bottom of pile elevation is for preliminary use only. Actual bottom of piles shall be determined by the geotechnical engineer and shall be adjusted on the basis of the load test or otherwise coordinated with the geotechnical engineer prior to fabrication of pile cage reinforcement.

CAPACITY: Pier capacities shall be as indicated on the drawings.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: Conform to:

- ACI 301-10 "Specifications for Structural Concrete"
- IBC Chapter 19 "Concrete"
- ACI 318-14 "Building Code Requirements for Structural Concrete"
- ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

FIELD REFERENCE: The contractor shall keep a copy of ACI Field Reference manual, SP-15, "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References."

CONCRETE MIXTURES: Conform to ACI 301 Section 4 "Concrete Mixtures" and IBC Section 1904.2.

MATERIALS: Conform to ACI 301 Section 4.2.1 "Materials" for requirements for cementitious materials, aggregates, mixing water and admixtures.

SUBMITTALS: Provide all submittals required by ACI 301 Section 4.1.2. Submit mix designs for each mix in the lab before. Substantiating strength results from past tests shall not be older than 24 months per ACI 318 Section 5.3.

TABLE OF MIX DESIGN REQUIREMENTS

Member Type/Location	Strength f'c (psi)	Test Age (days)	Maximum Aggregate	Exposure Class	Max W/C Ratio	Air Content	Notes (1 to 8 Typical UNCD)
Shallow Footings	4,000	28	1"	F1, C1	-	-	-
Drilled Piers	6,000	28	1"	F1, C1	0.45	-	-
Pier Caps & Grade Beams	6,000	28	1"	F1, C1	-	-	-
Exterior Slabs on Grade & Sidewalks	3,000	28	1"	-	0.45	5%	-
Interior Slabs on Grade	3,000	28	1"	-	0.5	-	-
Mild Reinforced Beams & Slabs	6,000	28	1"	-	0.45	-	9
	7,200	56					
PT Beams and Slabs	3,000	stressing	1"	C1	0.45	-	9
	6,000	28					
	7,200						



The Floodgate Apartments

143 East Commerce Street
San Antonio, TX, 78205

DCI PROJECT NUMBER 18061-0031

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IF THIS DOCUMENT IS NOT SIGNED, SEALED, AND DATED, IT MAY NOT BE USED FOR REGULATORY APPROVAL, PERMIT OR CONSTRUCTION

FOUNDATION PERMIT

100% SCHEMATIC DESIGN	04/11/18
100% DESIGN DEVELOPMENT	06/06/18
FOUNDATION PERMIT	09/06/18

DESCRIPTION	DATE
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STRUCTURAL - GENERAL NOTES

S002

FOR PERMIT: The Engineer has indicated the applicability of the applicable building code for projects. The Contractor shall verify the applicability of the building code and the jurisdiction having authority over the project. Through the construction permit process, the Contractor shall be responsible for the jurisdiction having authority over the project.

- ADHESIVE ANCHORS:** The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE and MASONRY, as applicable and in accordance with corresponding current ICC ESR report. Reference the corresponding ICC ESR report for required minimum age of concrete, concrete temperature range, moisture condition, light weight concrete, and hole drilling and preparation requirements. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D). Adhesive anchors are to be installed in concrete aged a minimum of 21 days, unless otherwise specified in the ICC ESR report.
 - HILTI "HIT-HY 200" – ICC ESR-3187 for anchorage to CONCRETE with embedment depth less than or equal to 20 bar diameter.
 - HILTI "HIT-RE 600 V3" – ICC ESR-3814 for anchorage to CONCRETE with any embedment depth
 - SIMPSON "SJET-XP" – ICC ESR 2508 for anchorage to CONCRETE, [IAFMO 265 for anchorage to MASONRY]
 - SIMPSON "ET-HP" – ICC ESR-3372 for anchorage to CONCRETE Only
 - HILTI "HIT-HY 270" – ICC ESR-4143 for anchorage to MASONRY Only
- SCREW ANCHORS:** The following Screw type anchor is pre-approved for anchorage to CONCRETE or MASONRY in accordance with corresponding current ICC ESR report.
 - SIMPSON "ITEN HD" – ICC ESR-2713 for CONCRETE Only and ICC ESR-1056 for MASONRY Only
 - HILTI "KWIK HUS-EZ" – ICC ESR-3027 for anchorage to CONCRETE Only

STRUCTURAL STEEL

- REFERENCE STANDARDS:** Conform to:
- IBC Chapter 22 – "Steel"
 - ANSI/AISC 303.10 – Code of Standard Practice for Steel Buildings & Bridges"
 - AISC – "Manual of Steel Construction", Fourteenth Edition (2010)
 - ANSI/AISC 360-10 – "Specification for Structural Steel Buildings"
 - AWS D1.1:2010 – "Structural Welding Code – Steel"
 - 2009 RCSC – "Specification for Structural Joints using High-Strength Bolts"

SUBMITTALS: Submit the following documents to the SER for review:

- SHOP DRAWINGS** complying with AISC 360 Sections M1 and N3 and AISC 303 Section 4.
- ERECTION DRAWINGS** complying AISC 360 Sections M1 and N3 and AISC 303 Section 4.

Make copies of the following documents "Available upon Request" to the SER or Owner's Inspection Agency in electronic or printed form prior to fabrication per AISC 360 Section N2 requirements:

- Fabricator's written Quality Control Manual** that includes, as a minimum:
 - Material Control Procedures
 - Inspection Procedures
 - Non-conformance Procedures
- Steel & Anchor Rod suppliers' Material Test Reports (MTRs)** indicating the compliance with specifications.
- Fastener manufacturer's Certification** documenting conformance with the specification.
- Filler metal manufacturer's product data** for SMAW, FCAW and GMAW indicating:
 - Product specification compliance
 - Recommended welding parameters
 - Recommended storage and exposure requirements including baking
 - Limitations of use.
- Welded Header (Shear) Stud Anchors Manufacturer's certification** indicating the meet specifications.
- Weld Procedure Specifications (WPSs)** for spot and field welding
- Manufacturer's Certificates of Conformance** for electrodes, fluxes and gases (welding consumables)
- Procedure Qualification Records (PQRs)** for WPS's that are not prequalified in accordance with AWS.
- Welding personnel Performance Qualification Records (WPQRs)** and continuity records conforming to AWS standards

MATERIALS: Structural steel materials shall conform to materials and requirements listed in AISC 360 section A3 including, but not limited to:

Wide Flange (W), Tee (WT) Shapes	ASTM A992	Fy = 50 ksi
Structural (S), (M) & (HP) Shapes	ASTM A36	Fy = 36 ksi
Channel (C) & Angle (L) Shapes	ASTM A36	Fy = 36 ksi
Structural Plate (PL)	ASTM A36	Fy = 36 ksi
High Strength Plate (Gr 50 PL)	ASTM A572	Fy = 50 ksi
Hollow Structural Section – Square/Rect (HSS)	ASTM A500, Grade B	Fy = 46 ksi
Structural Pipe (PIPE) 12" dia and less	ASTM A500, Grade B	Fy = 35 ksi
Hollow Structural Section – Round (HSS)	ASTM A500, Grade B	Fy = 42 ksi

High Strength, Heavy Hex Structural Bolts.....ASTM A325F/1852, Type 1 or 3, Plain Heavy Hex NutsASTM A563, Grade and Finish per RCSC Table 2.1 Washers (Hardened Flat or Beveled).....ASTM F436, Grade and Finish per RCSC Table 2.1 Anchor Rods (Anchor Bolts, typically).....ASTM F1554, Gr. 36 Mid Threaded RodsASTM A36, Fy = 36 ksi Welded Header (Shear) Stud AnchorsASTM A108 – Nelson/TRW S3L Welded Header Stud (WHS) AnchorsASTM A108 – Nelson/TRW H4L Dowel Bar Anchors (DBA)ASTM A496 – Nelson/TRW D2L, Fy = 70 ksi

STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS

- ASTM A325-N bolts – "threads NOT excluded in the shear plane"
- High-strength bolted joints have been designed as "BEARING" connections.
- Provide ASTM Bolt Grade and Type as specified in the **MATERIALS** section above.
- Provide Washers over outer ply of slotted holes and oversize holes per RCSC Table 6.1.
- Provide Nut and Washer grade, types and finishes conforming to RCSC specification Table 2.1.
- Provide **fastener assemblies** from a single supplier.
- Joint Types shall be:
 - ST - "Snug Tight", for typical beam end "shear" connections, unless noted otherwise.
 - SC - "Slip Critical", where specifically indicated. Provide with Class A Flaying surface.
- Install bolts in joints in accordance with these requirements and the Contract Documents.
- Inspection is per RCSC Section 9.

ANCHORAGE TO CONCRETE

- EMBEDDED STEEL PLATES for Anchorage to Concrete:** Plates (PL) embedded in concrete with studs (WHS) or dowel bar anchors (DBA) shall be of the sizes and lengths as indicated on the plans with minimum 12" dia WHS x 6" long but provide not less than 1/4" interior cover or 1 1/2" exterior cover to the opposite face of concrete, unless noted otherwise.
- COLUMN ANCHOR RODS and BASE PLATES:** All columns (vertical member assemblies weighing over 300 pounds) shall be provided with a minimum of four 3/4" diameter anchor rods. Column base plates shall be at least 3/4" thick, unless noted otherwise. Cast-in-place anchor rods shall be provided unless otherwise approved by the Engineer. Unless noted otherwise, embedment of cast-in-place anchor rods shall be 12 times the anchor diameter (12D).

FABRICATION

- Conform to AISC 360 Section M2 "Fabrication" and AISC 303 Section 6 "Shop Fabrication".
- Quality Control (QC) shall conform to:
 - AISC 360 Chapter N "Quality Control and Quality Assurance" and
 - AISC 303 Section 8 "Quality Control"
- Fabricator and Erector shall establish and maintain written Quality Control (QC) procedures per AISC 360 section N3.
- Fabricator shall perform self-inspections per AISC 360 section N5 to ensure that their work is performed in accordance with Code of Standard Practice, the AISC Specification, Contract Documents and the applicable Building Code.
- QC Inspections may be coordinated with Quality Assurance inspections per Section N5.3 where fabricators QA procedures provide the necessary basis for material control, inspection, and control of the workmanship expected by the Special Inspector.

WELDING:

- Welding shall conform to AWS D1.1 with Prequalified Welding Processes except as modified by AISC 360 section J2. Welders shall be qualified in accordance with AWS D1.1 requirements.
- Use 70ksi strength, low-hydrogen type electrodes (E7018) or E717 as appropriate for the process selected.
- Welding of high strength anchor rods is prohibited unless approved by Engineer.
- Welding of headed stud anchors shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding".

ERECTION

- Conform to AISC 360 Section M4 "Erection" and AISC 303 Section 7 "Erection".
- Conform to AISC 360 Chapter N "Quality Control and Quality Assurance" and AISC 303 Section 8.
 - The Erector shall maintain detailed erection quality control procedures that ensure that the work is performed in accordance with these requirements and the Contract Documents.
- Steel work shall be carried up level and plumb within the limits defined in AISC 303 Section 7.13.
- High strength bolting shall comply with the RCSC requirements including RCSC Section 7.2 "Required Testing", as applicable to AISC 360 Chapter N Section M2.5 and AISC 303 Section 8.2.
- Welding of HEADED STUD ANCHORS shall be in accordance with AWS D1.1 Chapter 7 "Stud Welding"
- Provide Header (Shear) Stud Anchors welded through the metal deck to tops of beams denoted in Plans.
- The contractor shall provide training and safety protection required by AISC 360 Section M4.2 and AISC 303 Section 7.13 and 7.11.

PROTECTIVE COATING REQUIREMENTS:

- SHOP PAINTING:** Conform to AISC 360 Section M3 and AISC 303 Section 6.5 unless otherwise specified by the project specifications.
- INTERIOR STEEL:**
 - Unless noted otherwise, **do not paint** any of the steel surfaces meeting the following conditions:
 - Concealed by the interior building finishes.
 - Fireproofed.
 - Embedded in concrete.
 - Specially prepared as a "laying surface" for Type-SC "slip-critical" connections including bolted connections that form a part of the Seismic Force Resisting System governed by AISC 341 unless the coating conforms to requirements of the RCSC Bolt Specification and is approved by the Engineer.
 - Welded; if area requires painting, do not paint until after weld inspections and non-destructive testing requirement, if any, are satisfied.
- Interior steel, exposed to view, shall be painted with one coat of shop primer unless otherwise indicated in the project specifications. Field touch-ups to match the finish coat or as otherwise indicated in the project specifications.
- EXTERIOR STEEL:** Exposed exterior steel shall be protected by either:
 - Paint with an exterior multi-coat system as per the project specifications. Field touch-up painting shall as per the project specifications.
 - Galvanizing:** Unless protected with a paint system, exposed steel (outside the building envelope) shall be hot-dipped galvanized, where noted on the plans or otherwise indicated by the finishes specified by the Architect. Apply field touch-ups per project specifications.

SUBMITTALS: Conform to MSJC 1 Section 1.2. Submit shop drawings for review including:

- Masonry reinforcement, size, layout, and grade in accordance with plans.
- Material certificates for all Steel Reinforcing, Anchors, Ties and Metal Accessories certifying compliance with required strength, grade and ASTM standards.
- Certification letters for masonry block and grout mix design certifying compliance with required strength and respective ASTM standards.
- Mix Designs for each Grout Mix indicating type and proportions of ingredients in compliance of Proportion Specification.
- Product Information, ICC ESR Reports and Material Certifications certifying compliance for all non-pre-approved Post-Installed Anchors.
- Hot and/or Cold weather construction procedures.
- High Grout Lift procedures.

STRENGTH: The assumed compressive strength of the masonry assembly, fm, is 1500 psi based on IBC Section 2105.2.2.1.2 for concrete masonry and 2000 psi based on IBC Section 2105.2.2.1.1 for clay masonry.

MATERIALS:

- Concrete Masonry Units:** Conform to ASTM C 90, Type-I (moisture controlled), medium weight (approx. 115 PCF) units. Provide 1600 psi compressive strength to achieve masonry assembly strength indicated above under STRENGTH.
- Mortar:** Conform to ASTM C270, Type S, and IBC Section 2103.9 "Mortar."
- Grout:** Conform to ASTM C476 and IBC Section 2103.13 Proportion Specifications.
- Reinforcing Bars:** Conform to ASTM A615, Grade 60 deformed bars and IBC Section 2103.14 unless noted otherwise. Lap Splices shall be as noted on plans. Fabrication shall be in accordance with MSJC 1 Section 2.7.5.
- Joint Reinforcement:** Conform to ASTM A615 and IBC Section 2103.14.
- Anchors, Ties and Accessories:** Conform to IBC Section 2103.14 and MSJC 1 Section 2.4D.
- Water:** Shall be clean and potable.
- Admixtures:** Admixtures shall not be used unless approved by SER.
- Post-Installed Anchors in MASONRY:** Reference the POST-INSTALLED ANCHORS section for applicable Post-Installed Anchors to Masonry.
- Second-Hand Units:** Shall not be used unless approved by SER.

QUALITY ASSURANCE (m=1500 psi): Conform to IBC Section 2105 "Quality Assurance"

- Masonry Units:** A letter of certification from the manufacturer of the units shall be provided to the SER prior to the delivery of the units to the jobsite to ensure the units comply with the compressive strength specified above and ASTM C 90.
- Mortar:** No mortar testing is required.
- Grout:** A letter of certification from the supplier of the grout mix shall be provided to the SER prior to delivery of the grout to the jobsite to ensure that the grout complies with ASTM C 476.

DELIVERY, STORAGE AND HANDLING: Delivery, storage and handling of materials used for masonry construction shall be per MSJC 1, Section 1.7.

SPECIAL INSPECTION: Special Inspections shall be performed per the "TESTS AND INSPECTIONS" section of the STRUCTURAL GENERAL NOTES.

ANCHORS, TIES AND CONNECTORS: Masonry anchors, ties and connectors shall be as specified on structural drawings. Consult architectural drawings for masonry anchor ties not included on the structural drawings.

EMBEDDED ITEMS: Embedded items and Accessories shall be in accordance with MSJC Section 1.15 and installed in accordance with MSJC 1 Section 3.2D. Position and Secure in place expansion joint material, anchors and other structural and non-structural embedded items before placing grout. Contractor shall refer to structural, architectural, mechanical, electrical, plumbing, etc. and coordinate all embedded items.

POST-INSTALLED ANCHORS to MASONRY: Anchor location, type, diameter and embedment shall be as indicated on drawings. Reference the POST INSTALLED ANCHORS section for applicable Post-Installed Anchor Adhesives. Anchors shall be installed and inspected in strict accordance with the applicable ICC-Evaluation Service Report (ESR). Special inspection shall be per the TESTS AND INSPECTIONS section.

MASONRY REINFORCING STEEL: Masonry reinforcing shall be as noted on plans and shall be securely placed in accordance with IBC Sections 2104.1.1, 2106, 2107, and 2108 and MSJC Section 1.16. Unless otherwise noted on the plans, the minimum wall reinforcement shall be as follows:

Wall Thickness	Vertical Bars	Running Bond Horizontal Bars	Stack Bond Horizontal Bars
6"	#5 @ 24" OC	#5 @ 32" OC	#6 @ 40" OC
8"	#5 @ 24" OC	(2) #4 @ 48" OC	(2) #5 @ 48" OC
12"	#5 @ 32" OC	(2) #5 @ 48 OC	(2) #6 @ 48 OC

Bond beams with horizontal bar or bars shall be provided at 48 inches on center and at all floor and roof lines and at the top of the wall. Provide a bond beam with horizontal bar or bars over all openings, and extend these bars 2'-0" past the opening at each side. Provide a bar or bars vertically for the full height of the wall at each side of openings, wall ends and intersections. Dowels to masonry walls shall be embedded a minimum of 1'-6" or hooked into the supporting structure and be of the same size and spacing as wall reinforcing. Reinforcing steel shall be as specified under "MATERIALS" Section. Provide corner bars to match the horizontal wall reinforcing at wall intersections. All bars shall be lapped a minimum 48 diameters or 1'-0" minimum unless noted on the plans.

TABLE OF MINIMUM REINFORCING

Wall Thickness	Vertical Bars	Running Bond Horizontal Bars	Stack Bond Horizontal Bars
6"	#5 @ 24" OC	#5 @ 32" OC	#6 @ 40" OC
8"	#5 @ 24" OC	(2) #4 @ 48" OC	(2) #5 @ 48" OC
12"	#5 @ 32" OC	(2) #5 @ 48 OC	(2) #6 @ 48 OC

SEQUENCE: Stress temperature tendons first, followed by uniformly distributed tendons, additional slab tendons, and then beam or banded tendons.

- Restore tendon grease coating in damaged area and 2 inches beyond each end of damage.
- Place piece of longitudinally split tubing around grouted tendon. Split tubing overlap shall be on opposite side of sheathing tear. Length of split tubing shall extend past damaged area 3 inches at each end. Alternatively, use two pieces of overlapping split sheathing. Align splits on opposite sides of tendon from each other.
- Tap entire length of repaired area, spirally wrapping tape around repair to provide at least two layers of tape. Taping shall overlap repaired areas by 3 inches at each end. Before taping, repair areas shall be dry and free of grease.

CONCRETE PLACEMENT: Conform to PTI Specification Sec. 3.3.

TENDON STRESSING: Conform to PTI Specification Sec. 3.4 "Tendon Stressing"

SCHEDULE: Stressing shall be performed within 96 hours of concrete placement unless approved by the Engineer.

STRESSING JACKS: Conform to PTI Specification Sec. 3.4.1.3 "Stressing Jacks" and Sec 3.4.2 "Jack Calibration." Provide calibration certificates with each Jack. Contractor shall keep certificates on file for duration of project.

ELONGATIONS: Conform to PTI Specification Sec. 3.4.3 "Elongation Measurements." Measured elongations shall agree with calculated values within 17%. Discrepances exceeding 7% shall be resolved with the Engineer prior to cutting and capping the tendons involved.

TENDON FORCES: Forces during and after stressing shall meet the following criteria:
Maximum Force at Jacking 33.0 KIPS
Maximum Force at Anchoring 28.9 KIPS
Minimum Final Effective Force 28.9 KIPS

TENDON FINISHING: Conform to PTI Specification Sec. 3.5 "Tendon Finishing." Finishing shall be completed within 3 days of acceptance of stressing records.

CUTTING APPROVAL: Excess strand shall not be cut without approval of the Engineer. Transmit complete stressing records to DCI as soon as possible after stressing has been completed. DCI will promptly review and indicate whether or not cutting of tendons is acceptable. If all tendons are within tolerance, the contractor may cut excess strand at their own risk before DCI approval is received. Basic elongation tolerance is 47% from calculated. Out of tolerance tendons will be approved by the EOR on a case by case basis.

CUTTING: Conform to PTI Specification Sec. 3.5.1 "General." Tendons may be cut by means of oxyacetylene torch, abrasive wheel or hydraulic shears. When using oxyacetylene cutting do not direct flame toward wedges.

COATING & CAPPING: Where "encapsulated system" is noted on the drawings conform to PTI Specification Sec. 3.5.2 "Aggressive Environments." Install the grease-filled plastic caps as soon as possible.

STRESSING POCKETS: Conform to PTI Spec. Sec. 3.5.3 "Stressing Pockets."

Preparation: Clean the inside surfaces of the pocket to remove laitance and grease. Coat inside surfaces with a resin bonding agent after cleaning at the contractor's discretion.

Filling: Fill pockets with non-metallic non-shrink grout. Grout shall not contain chlorides or other chemicals deleterious to the prestressing steel.

EMBEDS AND FASTENERS: Embeds and inserts for support of all non-structural elements, mechanical and other equipment shall be cast into the slab. Drilled or powder-driven fasteners will not be permitted except as noted below.

Immediately before concrete is placed, the position of tendons shall be marked on the forms with a material which leaves a physical impression on the underside of the slab. Congested areas shall be entirely marked off. Contractor's proposed method of marking tendons shall be submitted and reviewed by the SER and architect before starting construction. Note: there may be areas where marking of the slab is not allowed for architectural and/or concrete cover reasons.

PRESTRESSED BARRIER CABLE: Reference the current PTI Guide Specification for Seven-Wire Steel Strand Barrier Cable Applications. Barrier cable can be coated in plastic, epoxy or galvanized. Where barrier cable is bidder-design, it shall be designed to meet the automobile restraint and the pedestrian protection requirements in the current IBC.

REINFORCED UNIT MASONRY

REFERENCE STANDARDS: Conform to:

- IBC Chapter 21 "Masonry"
- ACI 530-13/ASCE 5-13/TMS 602-13 "Building Code Requirements for Masonry Structures." Herein referenced as MSJC.
- ACI 530-14/ASCE 5-13/TMS 602-13 "Specification for Masonry Structures." Herein referenced as MSJC.1.
- ACI SP-96 "ACI Detailing Manual" including ACI 315 "Details and Detailing of Concrete Reinforcement."
- ANSI/AWS D1.4 "Structural Welding Code - Reinforcing Steel"

POST-INSTALLED ANCHORS (INTO CONCRETE AND MASONRY)
REFERENCE STANDARDS: Conform to:
1) IBC Chapter 19 "Concrete"
2) ACI 318-14 "Building Code Requirements for Structural Concrete"
3) IBC Chapter 21 "Masonry"
4) ACI 530-13/ASCE 5-13/TMS602-13 "Building Code Requirements for Masonry Structures"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and the manufacturer's printed installation instructions (MPI) in conjunction with edge distance, spacing and embedment depth as indicated on the drawings. The contractor shall arrange for a manufacturer's field representative to provide installation training for all products to be used, prior to the commencement of work. Only trained installer shall perform post installed anchor installation. A record of training shall be kept on site and be made available to the SER as requested. Adhesive anchors installed in horizontally or upwardly inclined orientation shall be performed by a certified adhesive anchor installer (AAI) as certified through ACICRSI or approved equivalent. Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation. No reinforcing bars shall be damaged during installation of post-installed anchors. Special inspection shall be per the TESTS AND INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

- Stressing Records:** Conform to PTI Specification Sec 1.5.7 "Stressing Records." Submit for review. The special Inspector shall complete all stressing records.
- Mill Test Reports:** Conform to PTI Specification Sec. 1.5.1. Provide certified mill test reports for each coil or pack of strand. Contractors shall keep reports on file for duration of project.
- Anchorage and Couplers:** Conform to PTI Specification Sec. 1.5.2. Contractor to keep reports on file for the duration of the project.
- Sheathing and P-T Coating:** Conform to PTI Specification Sec. 1.5.3 and 1.5.4. Contractor to keep reports on file for the duration of the project.
- Calculations:** Submit calculations prepared by a SSE indicating the force provided, the specified prestressing losses, the final working stresses and the stressing sequence. The design shown in the drawings is based on a final effective force in each tendon of 28.9 kips.

POST-TENSIONING MATERIALS FOR ENCAPSULATED SYSTEMS: The following materials shall be used where an encapsulated system is noted on the drawings.

- Strand:** ASTM A416, Grade 270, 7/8" diameter, low relaxation type. Conform to PTI Specification Sec. 2.1 "Prestressing Steel." Strands shall originate from a PTI certified plant.
- Sheathing:** Conform to PTI Specification Sec. 2.3 "Sheathing," including section 2.3.5 "Aggressive Environments."
- Anchorage & Couplers:** Conform to PTI Specification Sec. 2.2 "Anchorage and Couplers," including Sec. 2.2.6 "Anchorage and Couplers in Aggressive Environments." Provide grease caps for all anchorages at all stressing ends. Tendon anchorages and couplings shall be designed to develop static and dynamic strength requirements of Section 2.2.1.1 and Section 2.2.1.2. Castings shall be nonporous and free of sand, blow holes, voids, and other defects. Provision shall be made for plastic cap to fit tightly and seal barred end on stressing side of anchor. Bearing side of anchor casting shall have provision for plastic sleeve, which shall prevent moisture leaks into anchor casting or tendon sheathing. For wedge type anchorages, wedge grippers shall be designed to precluded premature failure of prestressing steel due to notch or pinching effects under static and dynamic test load conditions per Section 2.2.3, for low relaxation prestressing steel materials. Component parts from different manufacturers shall not be used without substantiating test data.
- Repair Tape:** Conform to PTI Specification Section 3.2.5.

Anchor Cap: Grease caps and clear/translucent greased trumpets (or the zero void system by General Technologies Incorporated (GTI) or approved equivalent) at the P-T anchors shall be used to provide watertight connections between the P-T sheathing and anchor.

- Stressing End:** Plastic cap shall fit tightly, covering stressing end of barrel and wedges, and shall be fitted with sealing device. Cap shall allow minimum 1/4" protrusion of stand beyond wedges.
 - Intermediate Stressing Ends:** Plastic cap similar to above shall be used with exception that cap shall be open to allow passage of strand with minimum 3/4" chimney extension of cap.
 - Coating Material:** Wedge area and plastic cap shall be completely filled with same grease used along length of strand.
- Grease and Grout:** A grease filled plastic sleeve shall be used on bearing side of anchor casting which will prevent moisture leaks into anchor casting or tendon sheathing. Plastic sleeve shall be minimum 10" long. A groutmat shall be used at stressing ends, split groutmat at intermediate stressing points, to prevent moisture leaks into anchor casting or tendon sheathing.

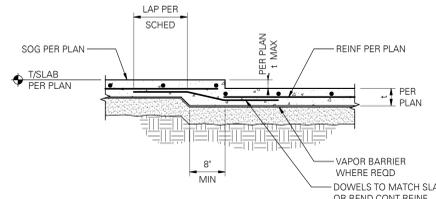
CORROSION INHIBITING COATING: Conform to PTI Specification Sec. 2.4 "P-T Coating"

OTHER MATERIALS: Conform to notes for CAST-IN-PLACE CONCRETE and CONCRETE REINFORCEMENT sections, except all admixtures shall be chloride free unless approved by the Engineer.

PRE-CONSTRUCTION MEETINGS: The contractor shall arrange a pre-construction meeting. The contractor, structural engineer-of-record, subcontractors involved with the post-tensioning work and representatives of the special inspection agency shall attend this meeting.

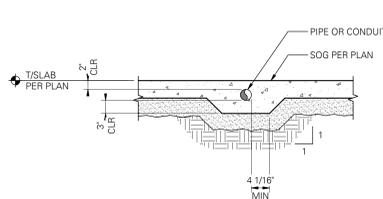
HANDLING, STORAGE, SHIPPING: Conform to PTI Specification Sec. 1.6.2 and 1.7.

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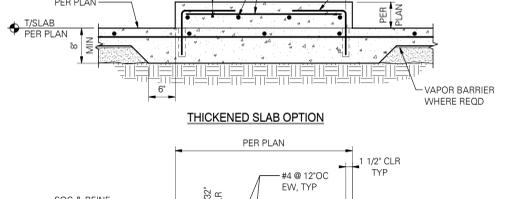
1 TYPICAL DEPRESSED SLAB DETAIL

SCALE: 3/4" = 1'-0" (03202)



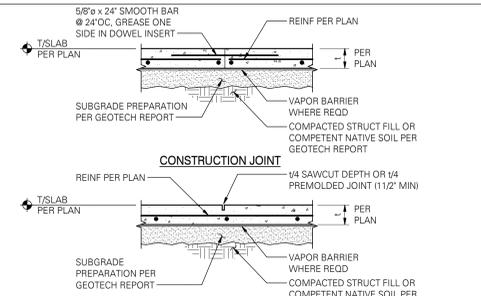
2 PIPE OR CONDUIT EMBEDDED IN SLAB ON GRADE

SCALE: 3/4" = 1'-0" (03204)



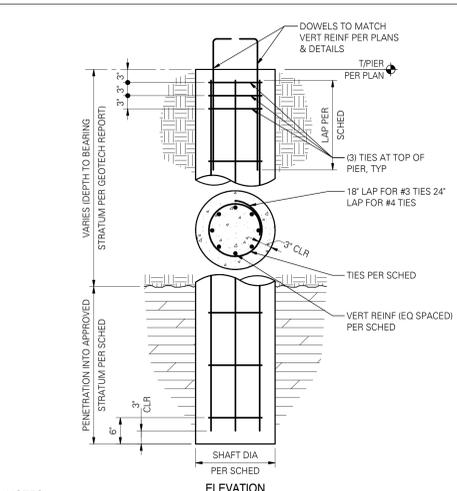
3 CONCRETE PAD ON SLAB ON GRADE

SCALE: 3/4" = 1'-0" (03205)



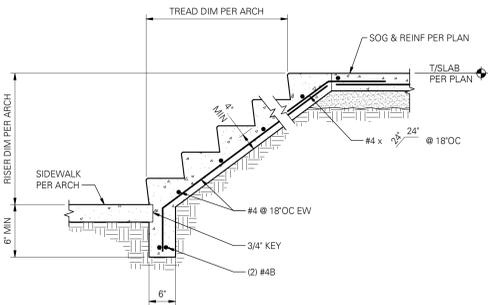
4 TYPICAL SLAB ON GRADE JOINT DETAILS WITH REINFORCING

SCALE: 3/4" = 1'-0" (03201)



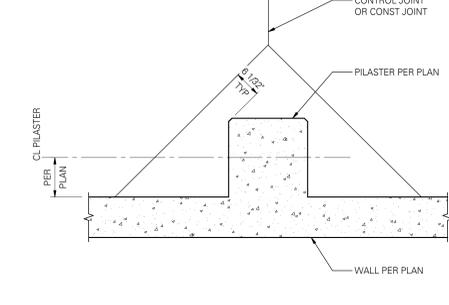
5 TYPICAL DRILLED PIER

SCALE: 3/4" = 1'-0"



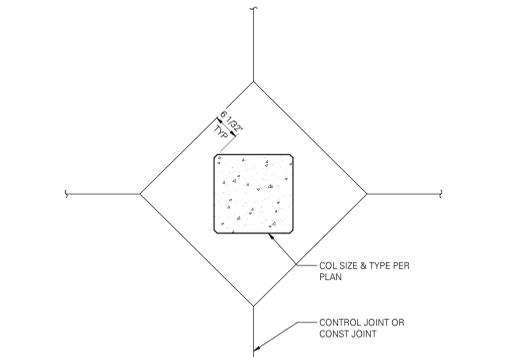
6 TYPICAL STAIR ON GRADE

SCALE: 3/4" = 1'-0" (03800)



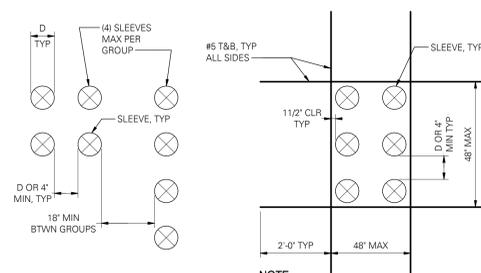
7 PLAN - TYPICAL CONTROL JOINT AT EXTERIOR CONCRETE PILASTER

SCALE: 3/4" = 1'-0" (03215)



8 PLAN - TYPICAL CONTROL JOINT AT CONCRETE COLUMNS

SCALE: 3/4" = 1'-0" (03214)



9 PLANS - SLEEVES THRU CONCRETE SLAB

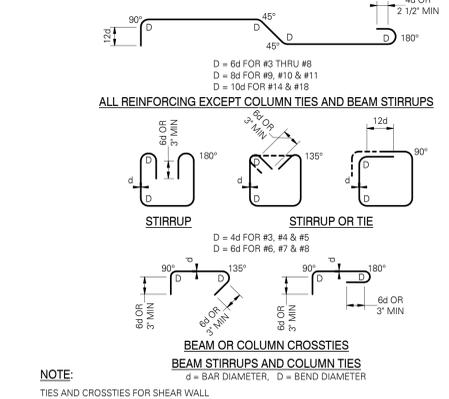
SCALE: 1/2" = 1'-0" (03221)

D1400 GRADE 60 REINFORCING					
BAR SIZE	MISCELLANEOUS BARS		TOP BARS (See note #5)		HOOKED BARS
	Ld	Splice	Ld	Splice	
F _c = 3000psi					
#3	17	22	22	28	9
#4	22	29	29	38	11
#5	28	36	36	47	14
#6	33	43	43	56	17
#7	48	63	63	81	20
#8	55	72	72	93	22
#9	62	81	81	105	25
#10	70	91	91	118	28
#11	78	101	101	131	31
#14	93	N/A	121	N/A	38
#18	124	N/A	161	N/A	50
F _c = 4000psi					
#3	15	19	19	25	8
#4	19	25	25	33	10
#5	24	31	31	41	12
#6	29	37	37	49	15
#7	42	54	54	71	17
#8	48	62	62	81	19
#9	54	70	70	91	22
#10	61	79	79	102	25
#11	67	87	87	114	27
#14	81	N/A	105	N/A	33
#18	108	N/A	140	N/A	43
F _c = 5000psi					
#3	13	17	17	22	7
#4	17	23	23	29	9
#5	22	28	28	36	11
#6	26	34	34	44	13
#7	38	49	49	63	15
#8	43	56	56	72	17
#9	48	63	63	81	20
#10	54	71	71	92	22
#11	60	78	78	102	24
#14	72	N/A	94	N/A	29
#18	96	N/A	125	N/A	39

- NOTES:**
- ALL TABULATED VALUES ARE IN INCHES.
 - VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > 4d. CLEAR COVER > 4d AND MINIMUM STRIPPUS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2d. AND CLEAR COVER > 4d.
 - DEVELOP ALL REINFORCING IN STRUCTURAL SLABS WITH MINIMUM DEVELOPMENT LENGTH Ld.
 - L_{dh} = DEVELOPMENT LENGTH OF BAR WITH STANDARD HOOK.
 - TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW OR AS NOTED ON DOCUMENTS AS "TOP BAR".
 - LAP SPLICE OF DIFFERENT SIZED BARS TO BE THE LARGER OF Ld OF THE LARGER BAR OR SPLICE LENGTH OF THE SMALLER BAR.
 - LAP SPLICE OF #14 AND #18 BARS IS NOT PERMITTED. LAP SPLICE OF SMALLER TO #14 AND #18 BARS IS NOT PERMITTED.
 - LAP SPLICE OF DIFFERENT GRADES OF REINFORCING TO BE THE LARGER OF Ld OF THE HIGHER GRADE BAR OR SPLICE LENGTH OF THE LOWER GRADE BAR.
 - COLUMN VERTICAL REINFORCING LAP SPLICE SCHEDULE PER [01401].
 - SHEAR WALL REINFORCING LAP SPLICE SCHEDULE PER [01404].

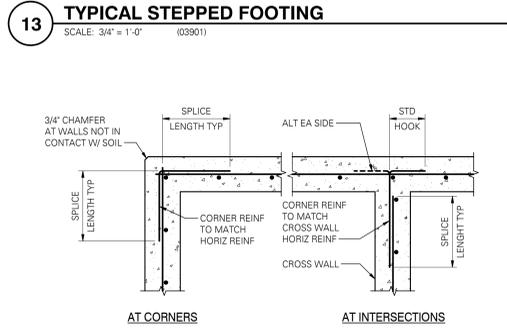
16 TYPICAL LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE

SCALE: 3/4" = 1'-0" (01400)



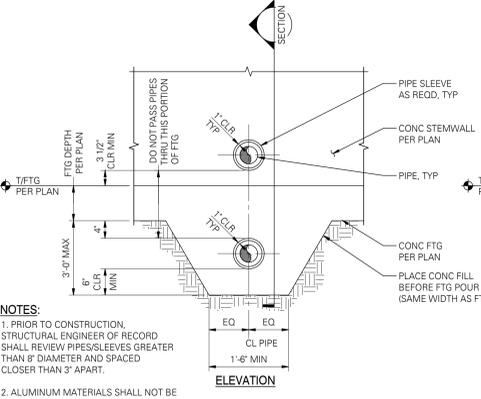
17 STANDARD HOOKS AND BENDS - BEAM STIRRUPS AND COLUMN TIES

SCALE: 3/4" = 1'-0" (03400)



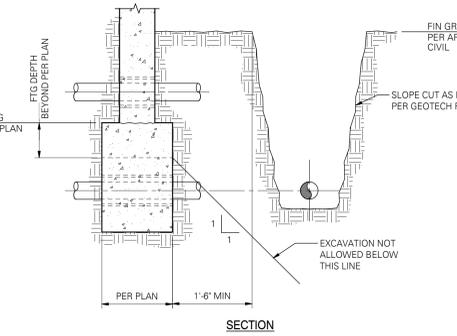
13 TYPICAL STEPPED FOOTING

SCALE: 3/4" = 1'-0" (03901)



14 TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL/FOOTING

SCALE: 3/4" = 1'-0" (03906)



15 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE WALLS

SCALE: 3/4" = 1'-0" (03403-SINGLE MAT)

- NOTES:**
- SPLICE LENGTHS PER LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE.
 - WALL REINFORCING PER PLAN OR ELEVATIONS, SECTIONS AND DETAILS.
 - AT FOOTINGS AND STEMWALLS, CORNER REINFORCING TO MATCH FOOTING AND STEMWALL HORIZONTAL REINFORCING.

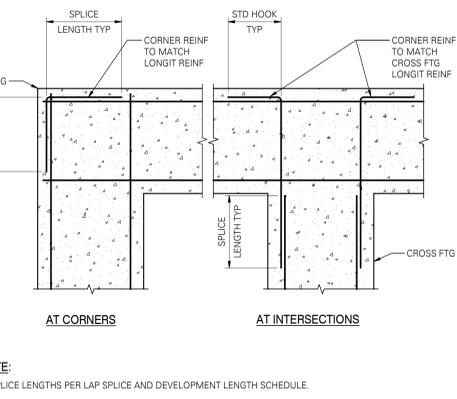
18 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE WALLS

SCALE: 3/4" = 1'-0" (03403-SINGLE MAT)

- NOTES:**
- SPLICE LENGTHS PER LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE.
 - WALL REINFORCING PER PLAN OR ELEVATIONS, SECTIONS AND DETAILS.
 - AT FOOTINGS AND STEMWALLS, CORNER REINFORCING TO MATCH FOOTING AND STEMWALL HORIZONTAL REINFORCING.

19 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE WALLS

SCALE: 3/4" = 1'-0" (03403-DOUBLE MAT)



20 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS

SCALE: 3/4" = 1'-0" (03907)

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FOUNDATION PERMIT

100% SCHEMATIC DESIGN	04/11/18
100% DESIGN DEVELOPMENT	08/09/18
FOUNDATION PERMIT	09/06/18

DESCRIPTION DATE

FOR PERMIT

Structural - Typical Foundation Details

S301

