

# TWAIN HARTE COMMUNITY SERVICE DISTRICT - OFFICE AND TRAINING SITE STORMWATER IMPROVEMENTS



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**CLIENT**

TWAIN HARTE COMMUNITY SERVICE DISTRICT  
 2912 VANATAGE POINT DR.  
 TWAIN HARTE, CA, 95383

**PROJECT TEAM**

**WATERSHED PROGRESSIVE**

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**BLACK WATER CONSULTING ENGINEERS, INC.**

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CIVIL ENGINEER  
 JEFF BLACK P.E  
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**PROJECT SUMMARY**

THE TWAIN HARTE COMMUNITY STORMWATER ENHANCEMENT PROJECT (THCSEP) IS A COLLABORATIVE EFFORT TO PLAN FOR AND IMPLEMENT HYDROLOGICALLY CONNECTED STORMWATER TREATMENTS. THESE TREATMENTS WILL ADDRESS EXISTING DEFICIENCIES AND INCREASE RESILIENCE TO FUTURE CONDITIONS. THE TWAIN HARTE COMMUNITY SERVICES DISTRICT (THCSD) OFFICE PROJECT (LOCATED AT 22912 VANTAGE POINT DR, TWAIN HARTE, CA) IS ONE OF THE TWAIN HARTE COMMUNITY STORMWATER ENHANCEMENT PROJECTS.

THE GOALS OF THE THCSEP AND THCSD OFFICE PROJECT ARE TO MITIGATE HAZARDS AND PROVIDE MULTIPLE BENEFITS TO THE WATERSHED AND SURROUNDING REGION. THESE MULTI-BENEFIT GOALS INCLUDE:

- INCREASED TREATMENT OF STORMWATER RUNOFF
- INCREASED WATER SUPPLY RELIABILITY
- IMPROVEMENT AND PROTECTION OF ENVIRONMENTAL HABITAT
- IMPROVEMENT OF STORMWATER SYSTEM CAPACITY (FLOOD MANAGEMENT)

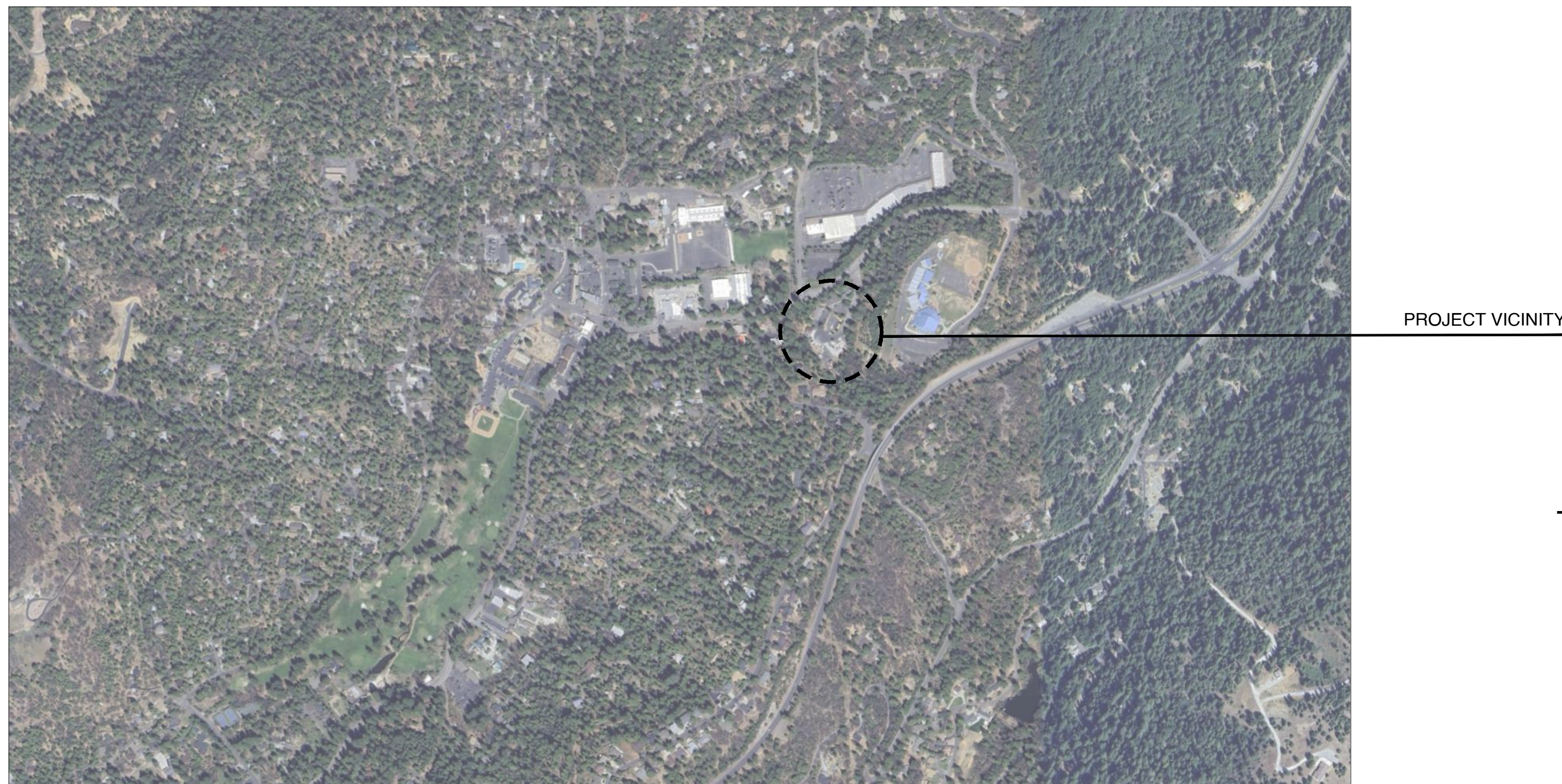
**SHEET INDEX**

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**ABBREVIATIONS**

(E)	EXISTING
(N)	NEW
LOD	LIMIT OF DISTURBANCE
POC	POINT OF CONNECTION
VAC	AC VOLTAGE
CW	COLD WATER
RW	RAINWATER
SW	STORMWATER
LP	LOW POINT
HP	HIGH POINT

**VICINITY MAP**

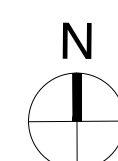
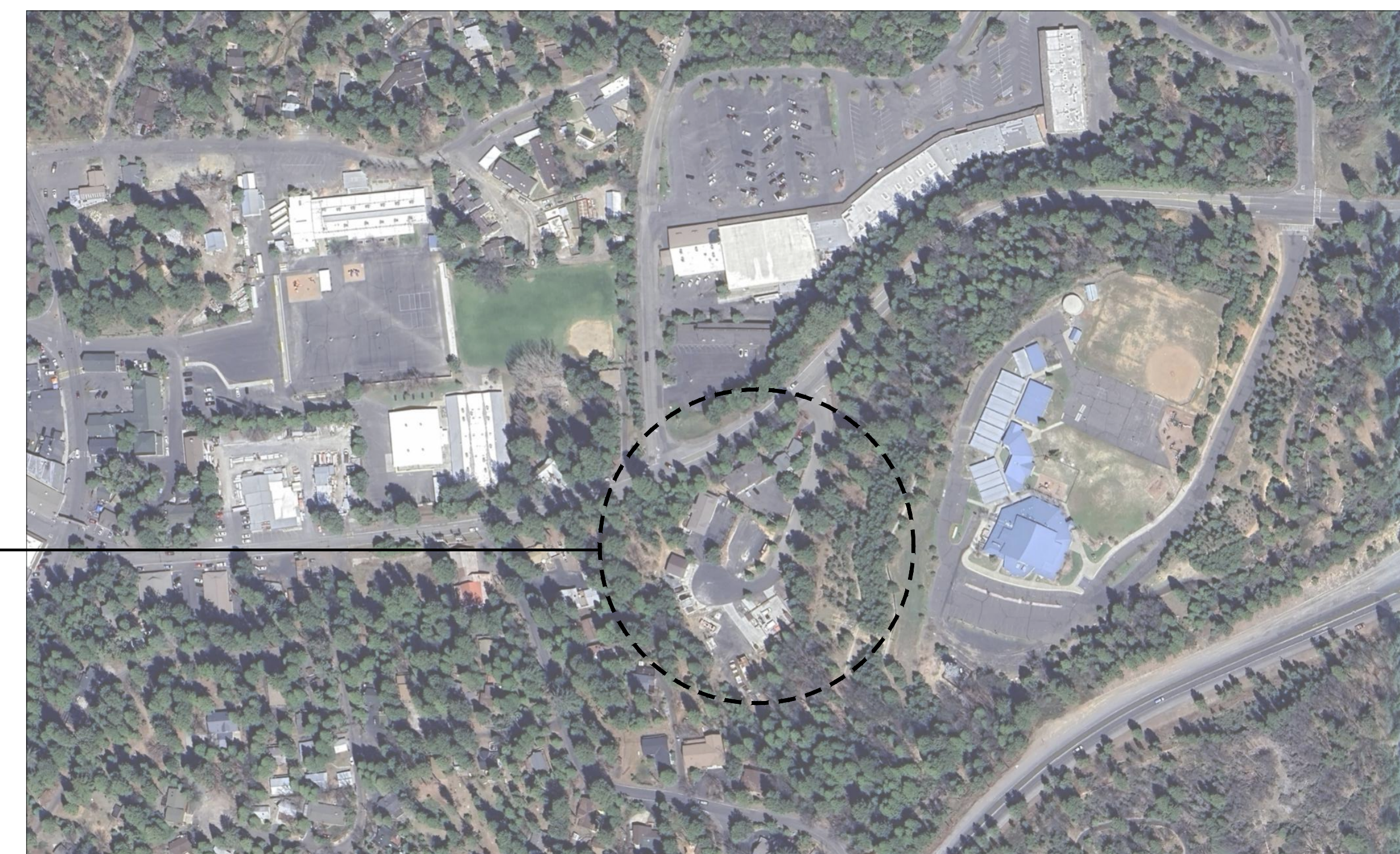


PROJECT VICINITY

PROJECT LOCATION



**PROJECT LOCATION MAP**



Twain Harte Community Service District  
 22912 Vantage Point Dr, Twain Harte, CA 95383

DATE:	PROJECT NO.
REVISION	DATE
1 60% SUBMITTAL	06.06.24
2 100% SUBMITTAL	06.26.24
3 100% SUBMITTAL v2	07.05.24
4 100% SUBMITTAL v3	08.09.24
5	
6	
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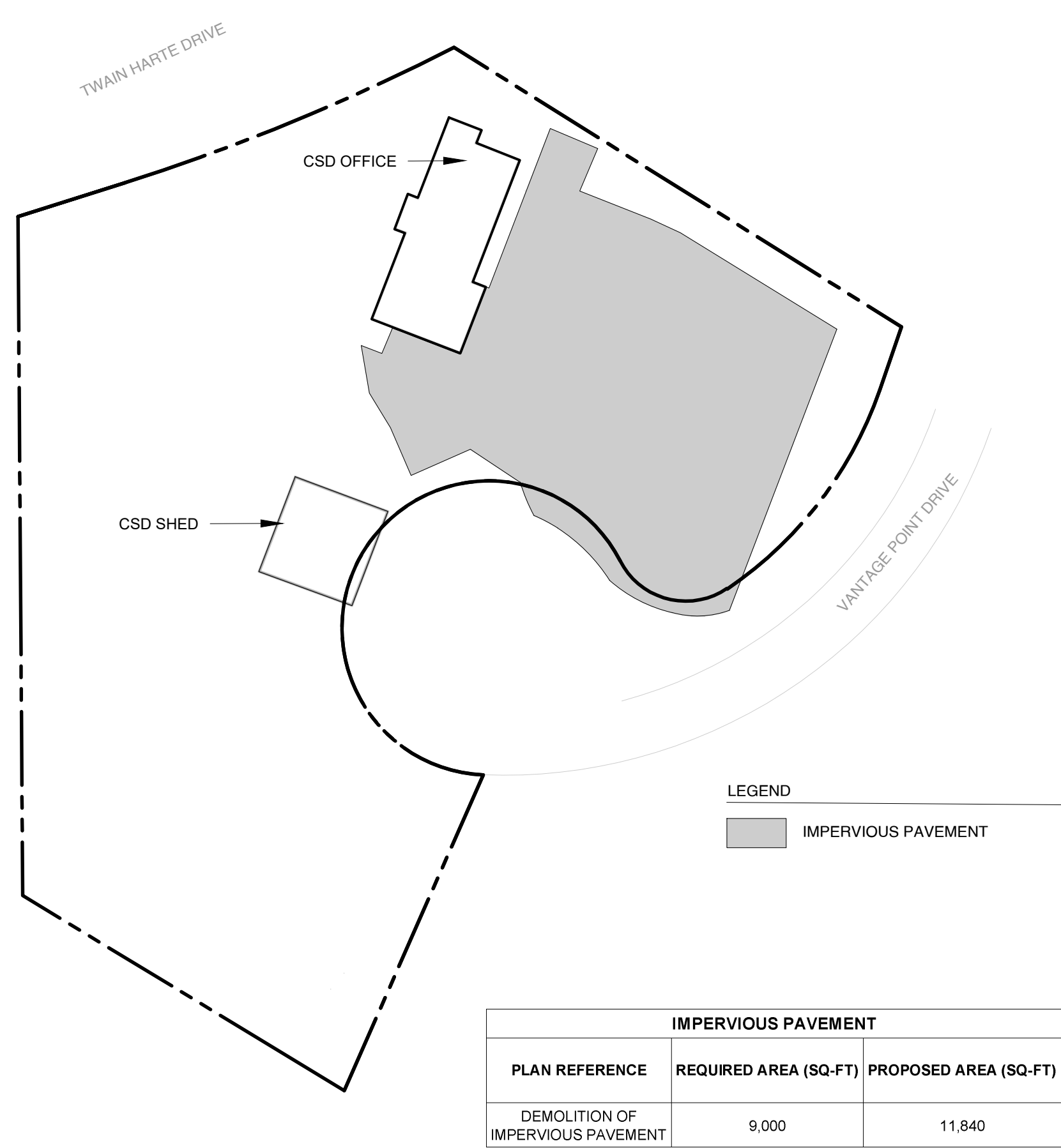
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SHEET NO.:

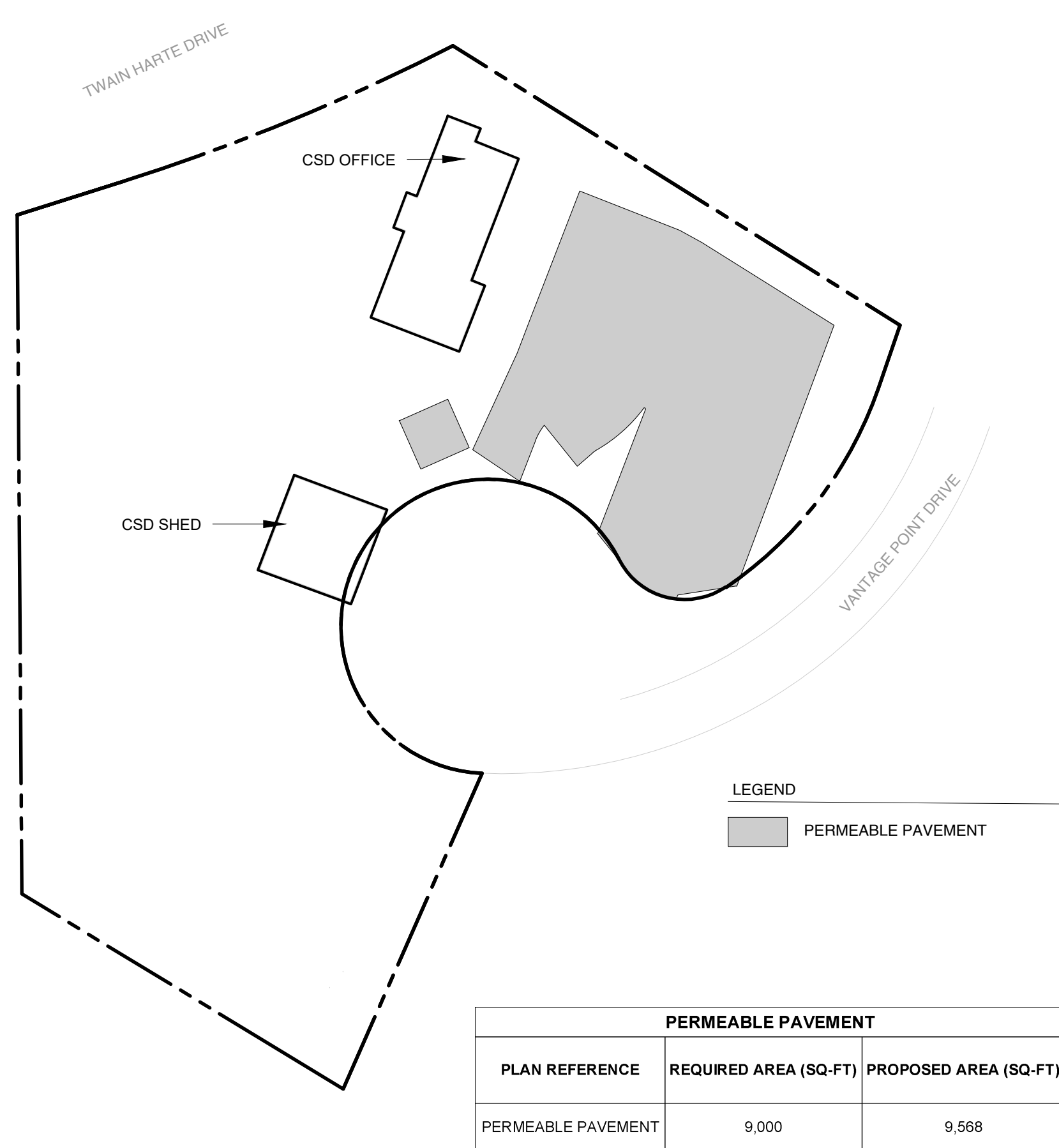
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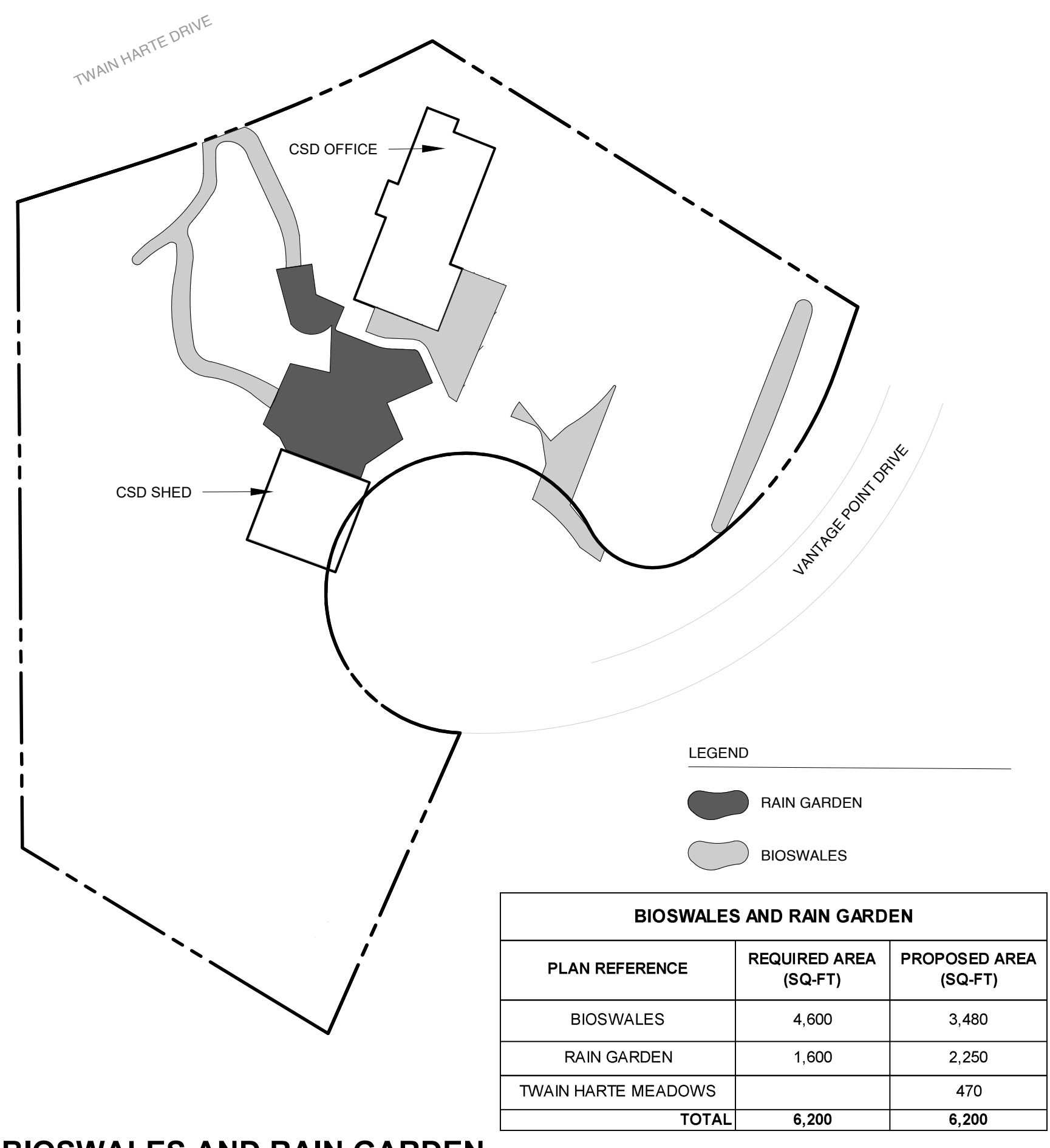
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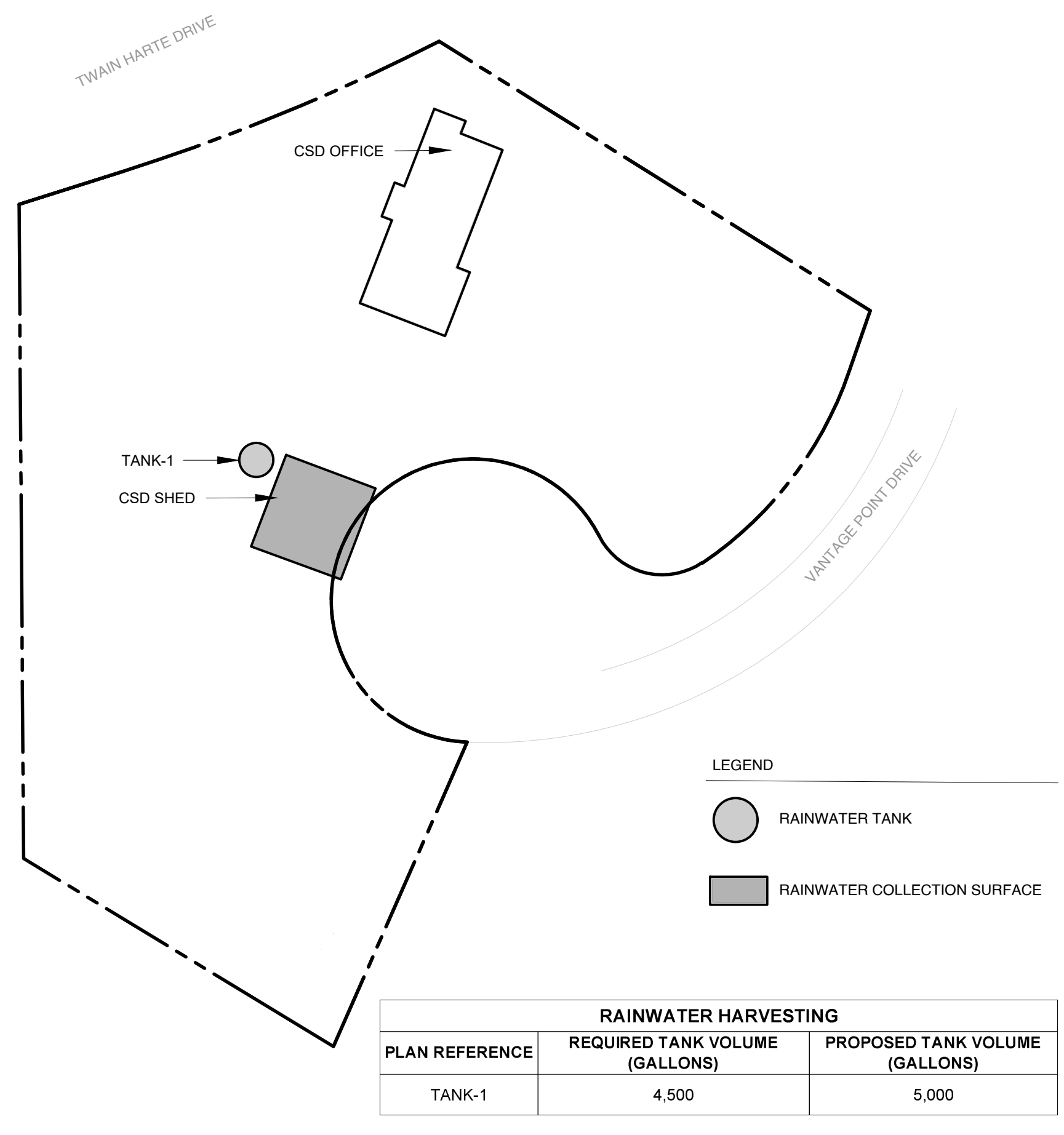
**1 DEMOLITION IMPERVIOUS PAVEMENT**



**2 PROPOSED PERMEABLE PAVEMENT**



**3 BIOSWALES AND RAIN GARDEN**



**4 RAINWATER HARVESTING**

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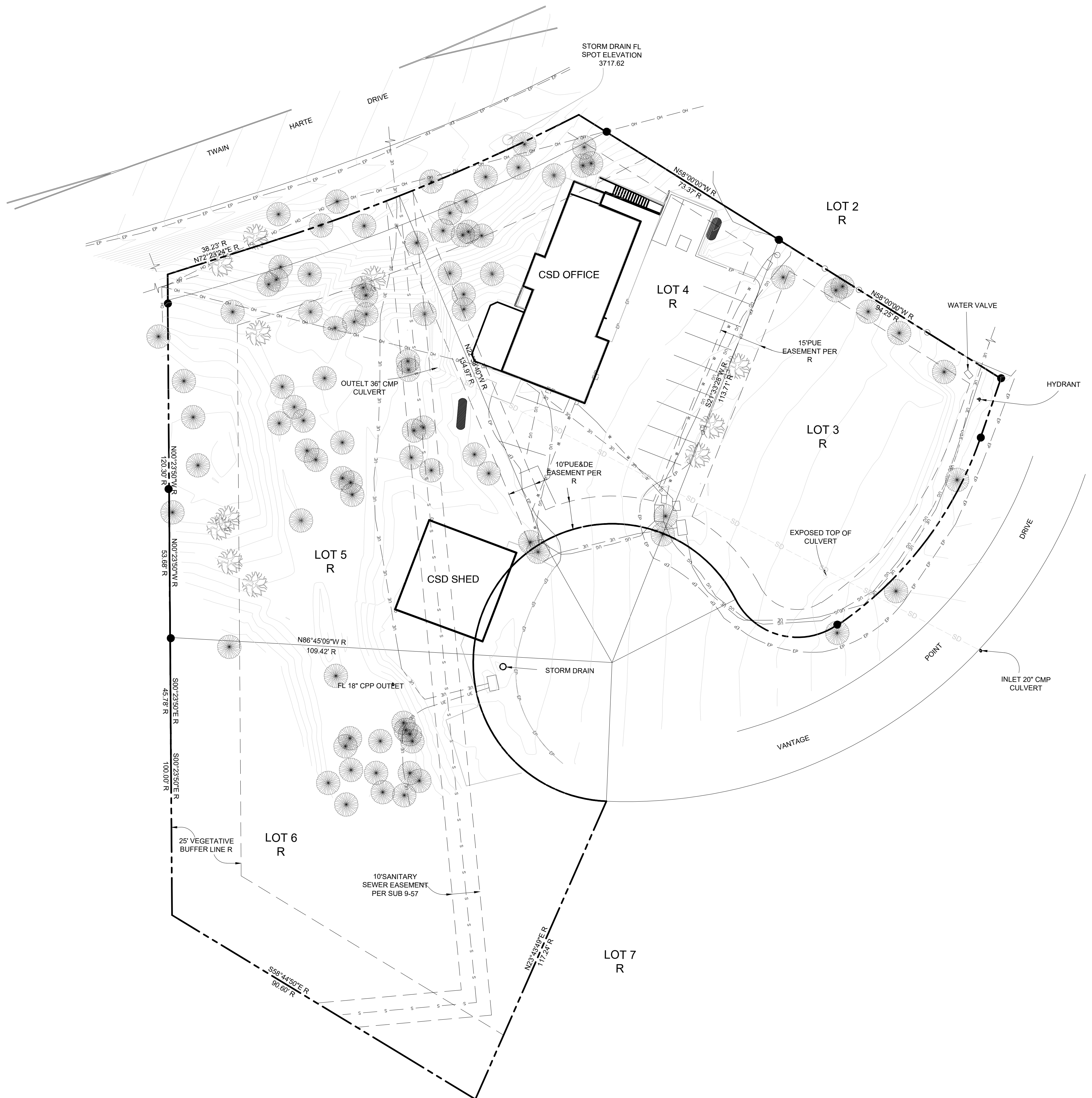
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EXHIBITS

SHEET NO.:

**L0.1**



GENERAL NOTES

- A. ALL EXISTING TANKS, PIPING, AND ELECTRICAL WORK SHALL BE AVOIDED AND PROTECTED WHEN NECESSARY THROUGHOUT CONSTRUCTION.
- B. 811 - KNOW WHAT'S BELOW - CALL BEFORE YOU DIG
- C. TOPOGRAPHIC DATA SHOW IS BASED ON A SURVEY CONDUCTED BY DAVID RAGLAND, ENGINEERING AND LAND SURVEYING. THE ELEVATIONS SHOWN ON THIS SHEET ARE DERIVED FROM A FIELD SURVEY FROM MARCH 2024; THE BEARINGS AND DISTANCES ARE RECORD PER PARCEL MAP 28-98 AND R/S 41-97 NAVD88.
- D. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE CREATED TO REPRESENT THE CONCEPTS AS ASSOCIATED WITH ON-SITE WATER REUSE INSTALLATIONS. FOR ALL SITE DIMENSIONS AND EXACT RELATIVE LOCATIONS, FIELD CONDITION AS-BUILTS SHALL BE REQUESTED FROM THE PROPERTY OWNER.

LEGEND - SURVEY AND EXISTING CONDITIONS

- PROPERTY BOUNDARY
- EXISTING FENCE
- EXISTING CONTOURS
- EXISTING BUILDING
- EXISTING TREE(S)
- EXISTING SEWER LINE
- EXISTING OVERHEAD UTILITY
- EXISTING UNDERGROUND WATER
- EXISTING UNDERGROUND COMMUNICATIONS
- EXISTING UNDERGROUND ELECTRICAL
- EDGE OF PAVEMENT



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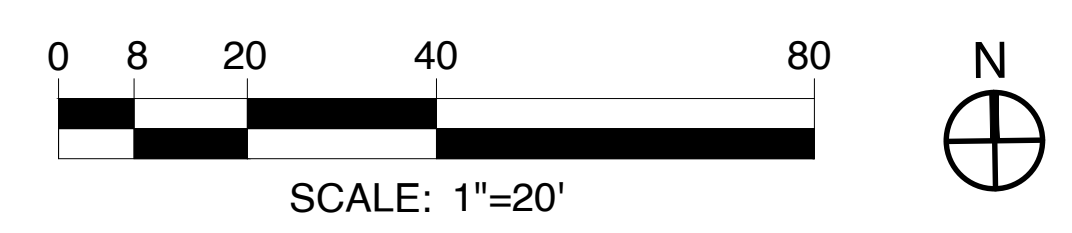
EXISTING CONDITIONS

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1 EXISTING CONDITIONS



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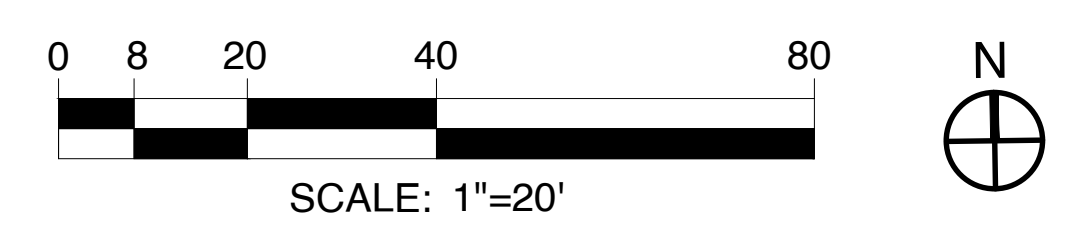
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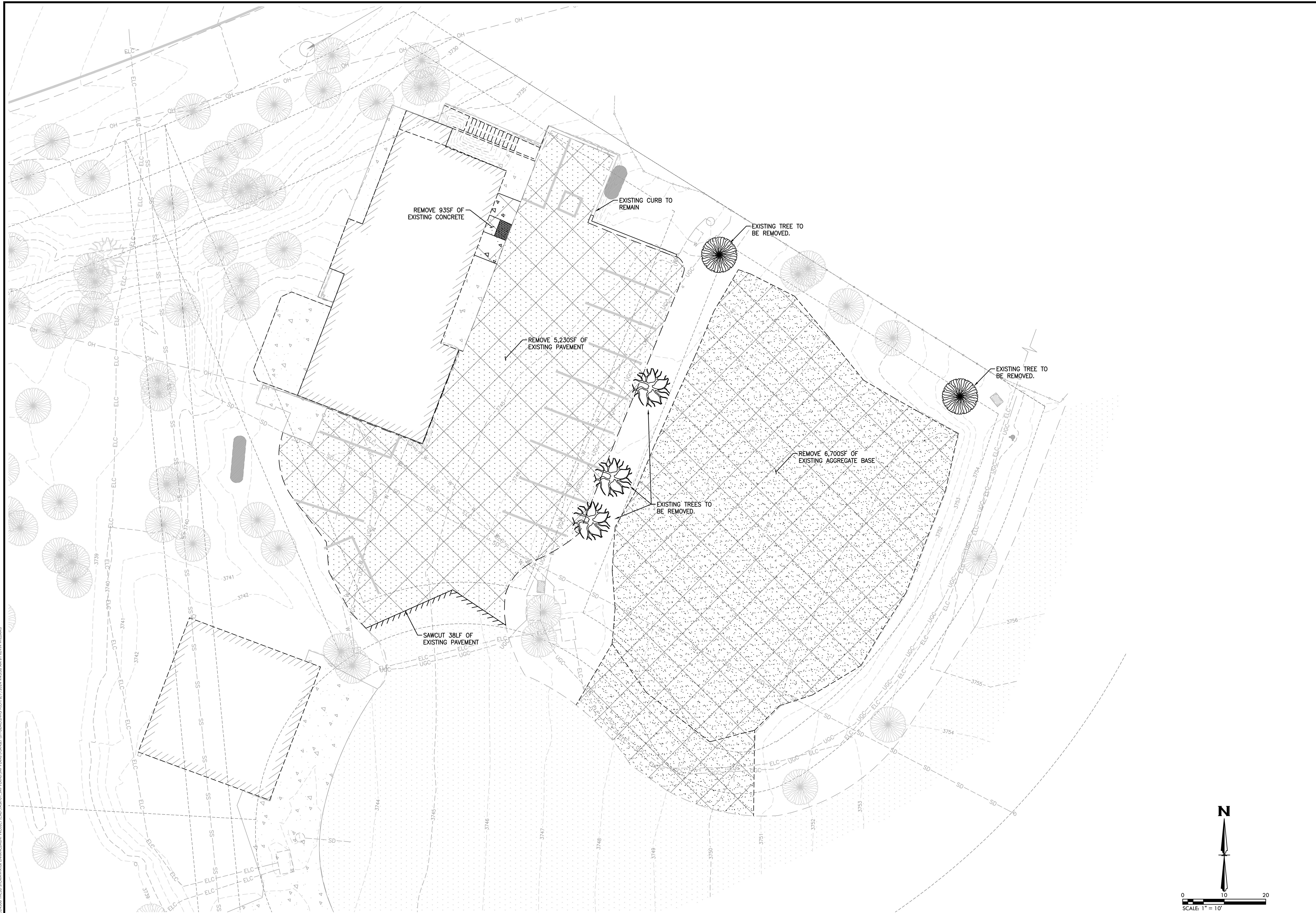
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**1** PROPOSED CONDITIONS EXHIBIT





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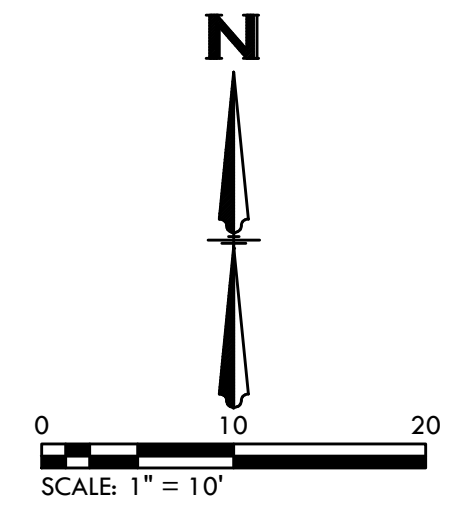
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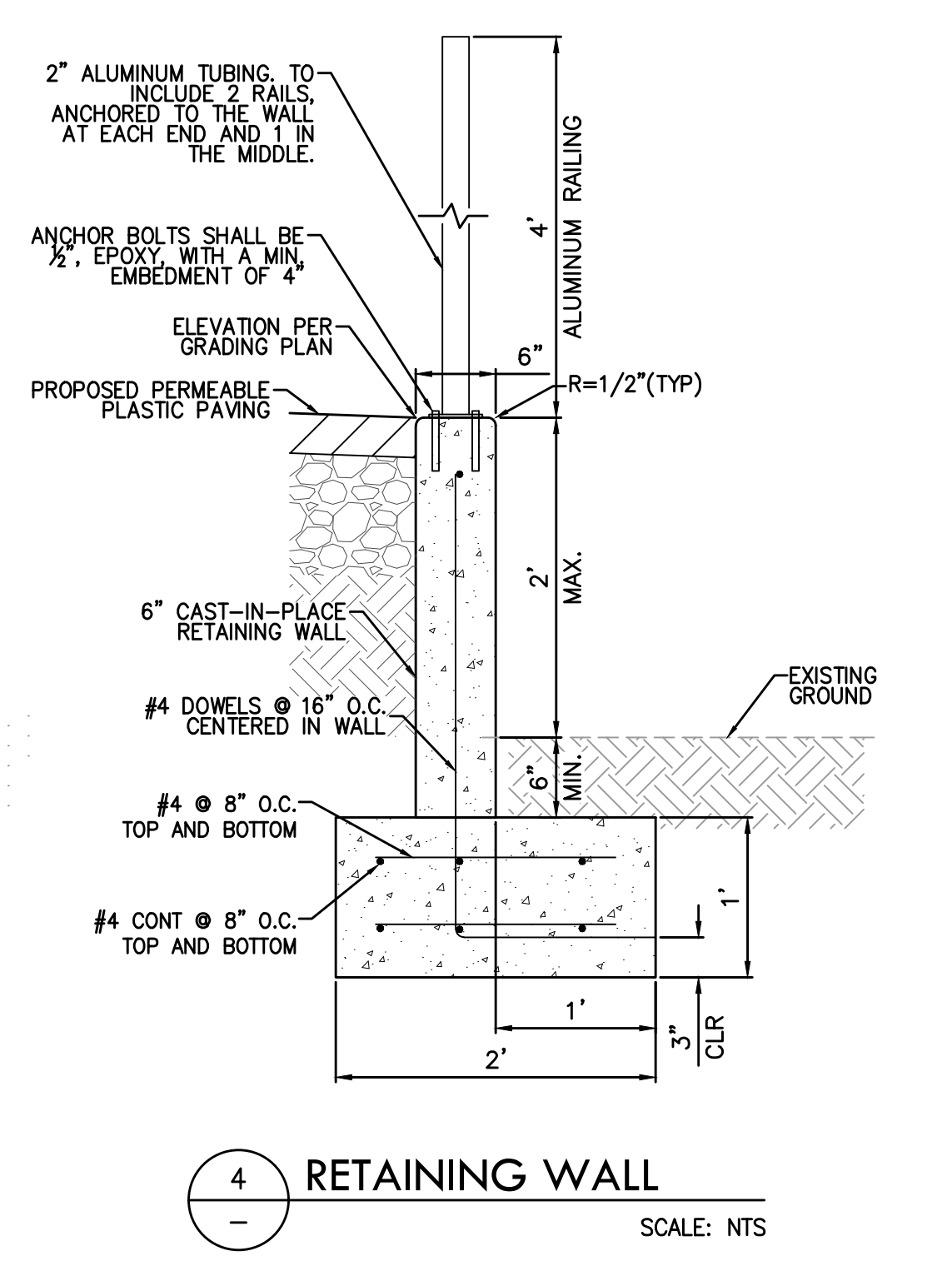
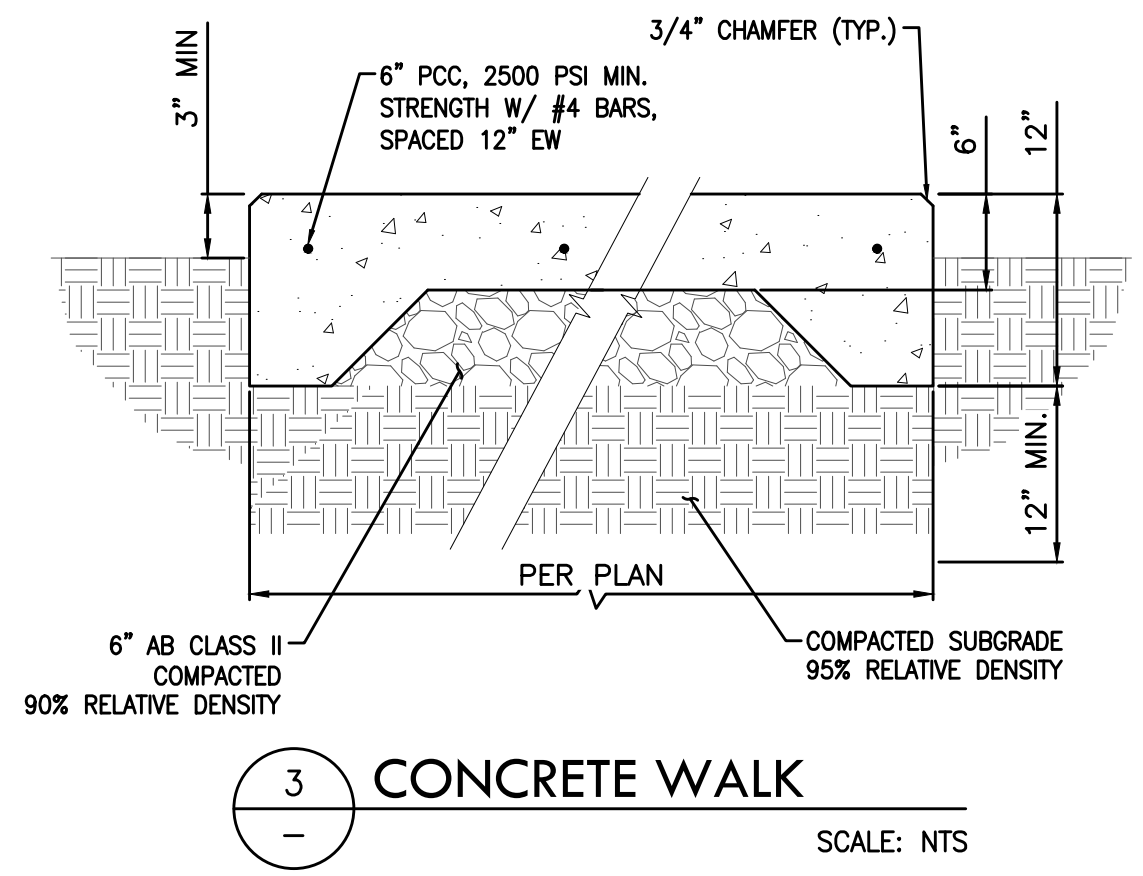
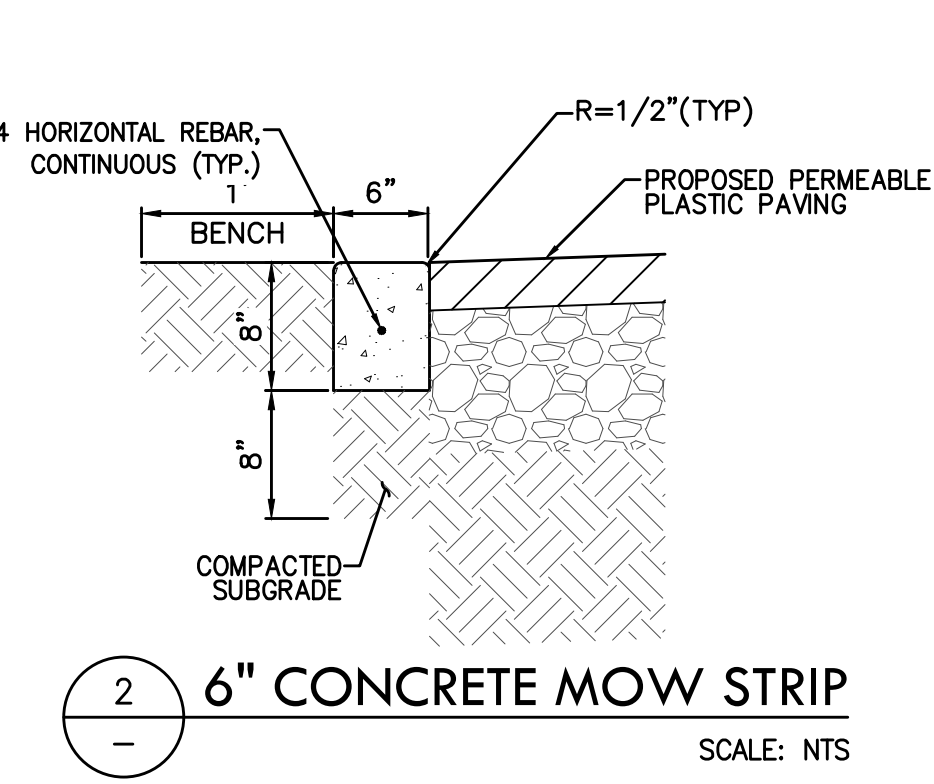
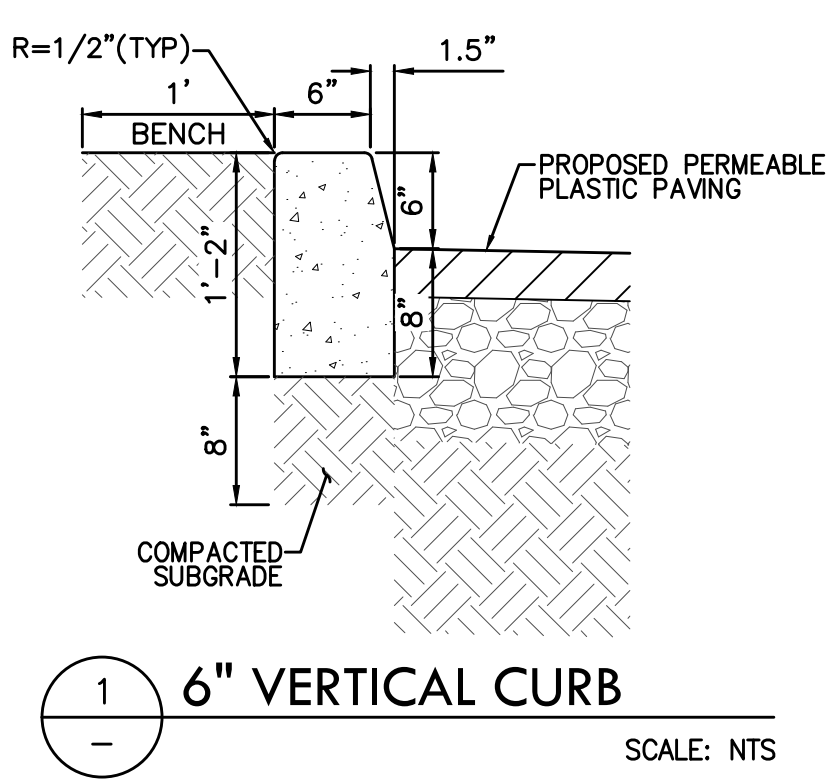
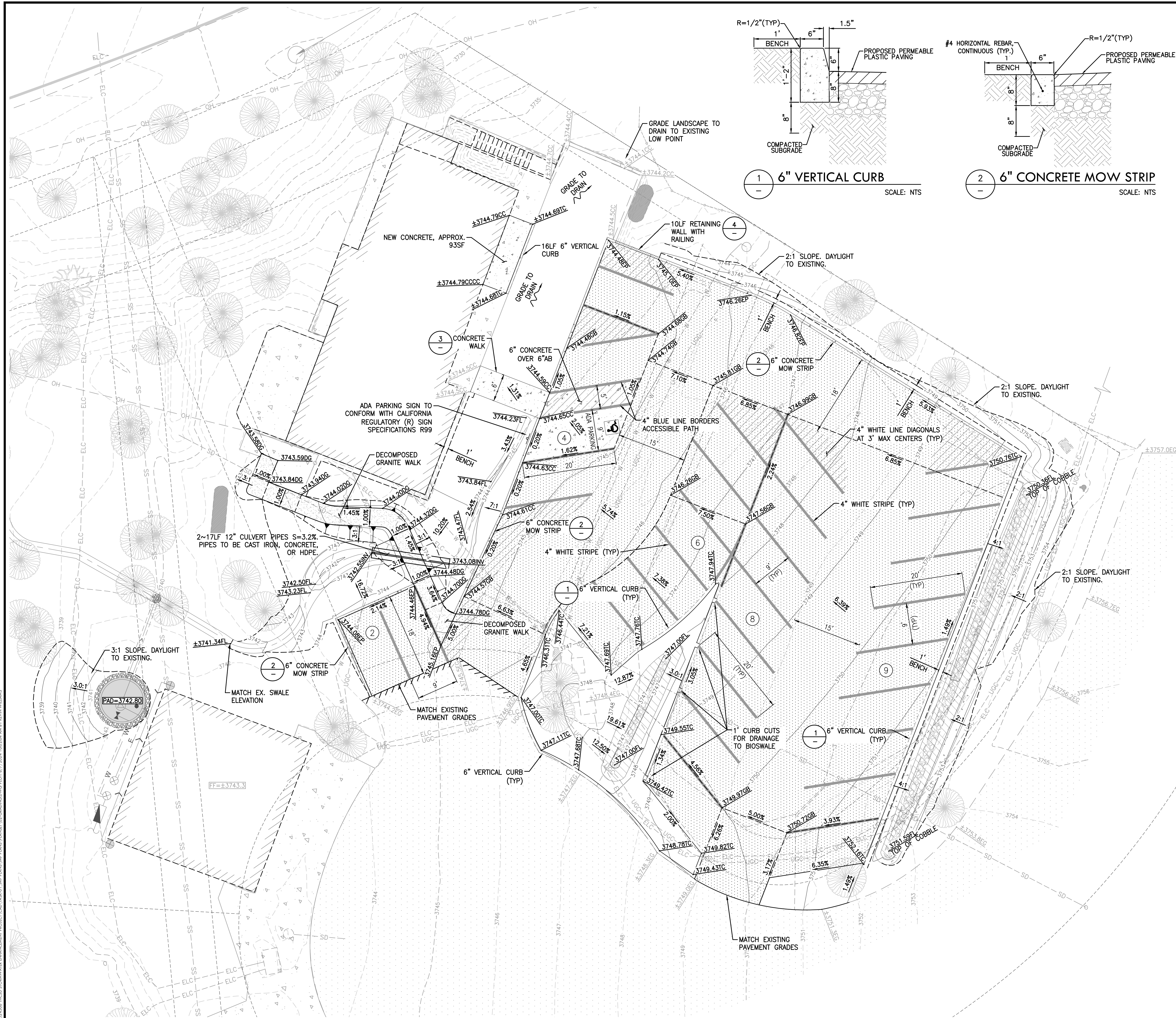
REV	DATE	DESCRIPTION	APP

**TWAIN HARTE COMMUNITY SERVICE DISTRICT**  
 22912 VANTAGE POINT DR. TWAIN HARTE, CA 95383

**DEMOLITION PLAN**

DESIGNED BY	EGM
DRAWN BY	KCW
CHECKED BY	JMB
JOB NO.	J24506
DATE	JULY/2024
DRAWING	C2.1
SHEET NO.	

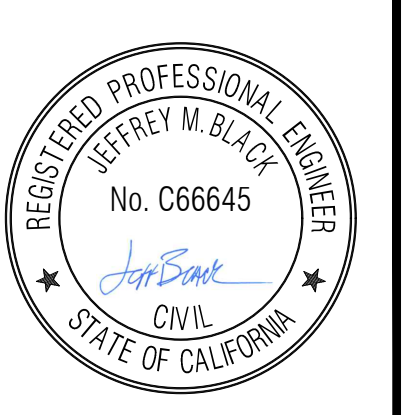




**SITE NOTES:**

- PARKING SPACES = 29
- PERMEABLE PLASTIC PAVING (TRUEGRID). SEE SPECIFICATIONS 32 12 43 FOR DETAILS= 9,56BSF
- CONCRETE ADA PARKING AREA = 280SF (6" CONCRETE OVER 6" AGGREGATE BASE)
- NO PARKING AREA

GRADING CUT/FILL			
CUT		FILL	
EX. ASPHALT (ASSUMED 4")	65CY	SUB-BASE	234CY
EX. GRAVEL (ASSUMED 4")	83CY	TRUEGRID FILL	59CY
EX. EARTH	296CY	SUBGRADE	24CY



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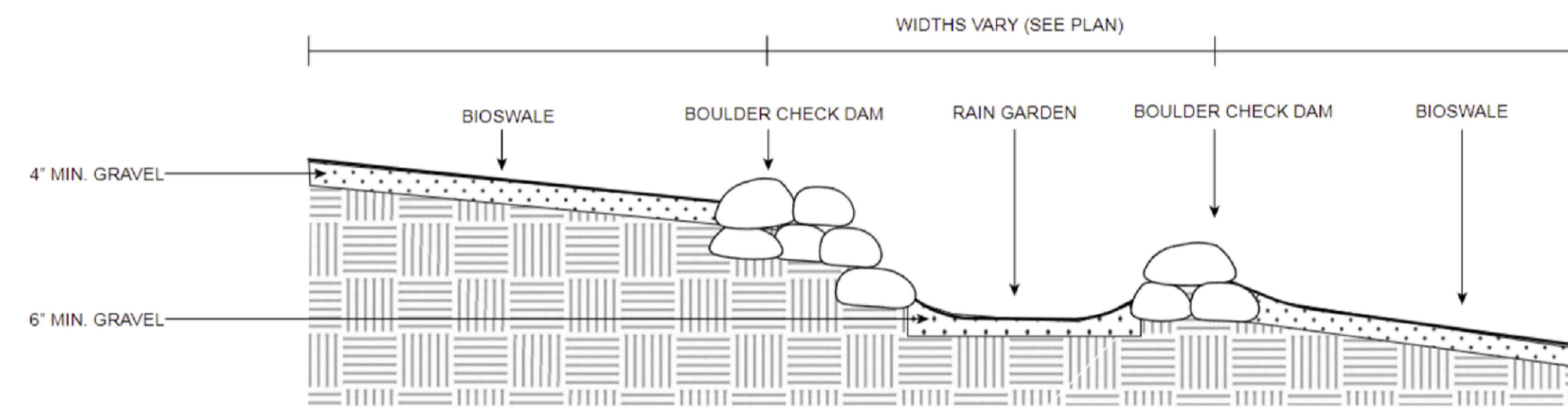
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**GRADING PLAN**

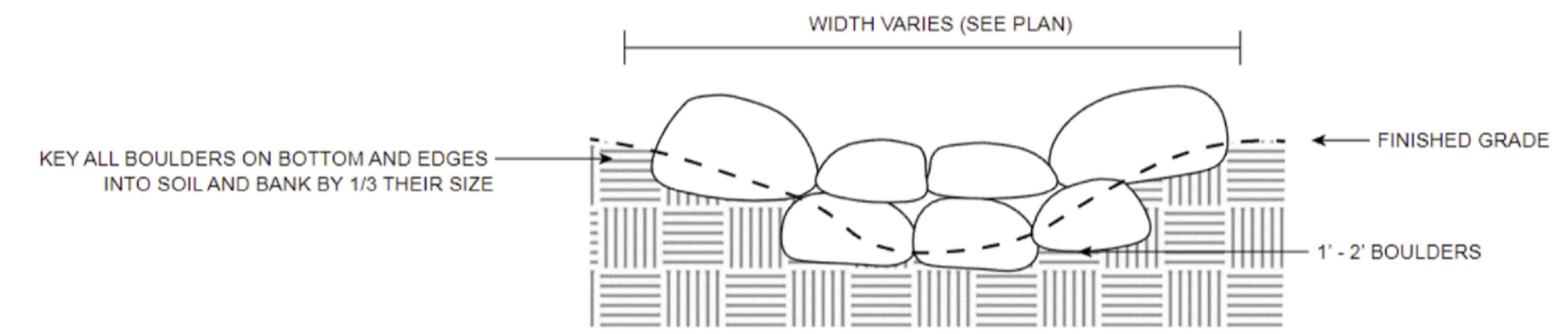
DESIGNED BY	EGM
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JOB NO.	J24506
DATE	JULY/2024
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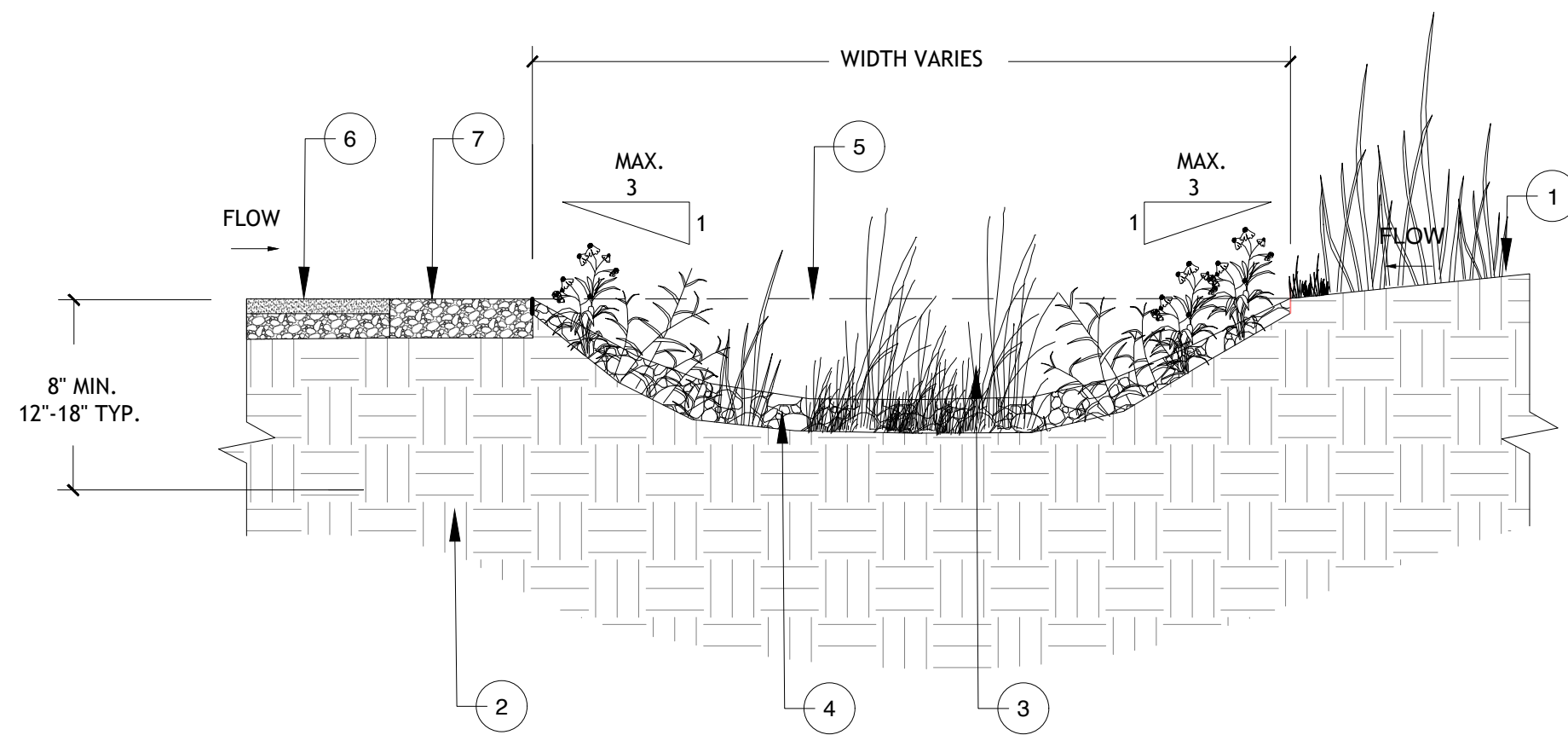
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(N.T.S.)



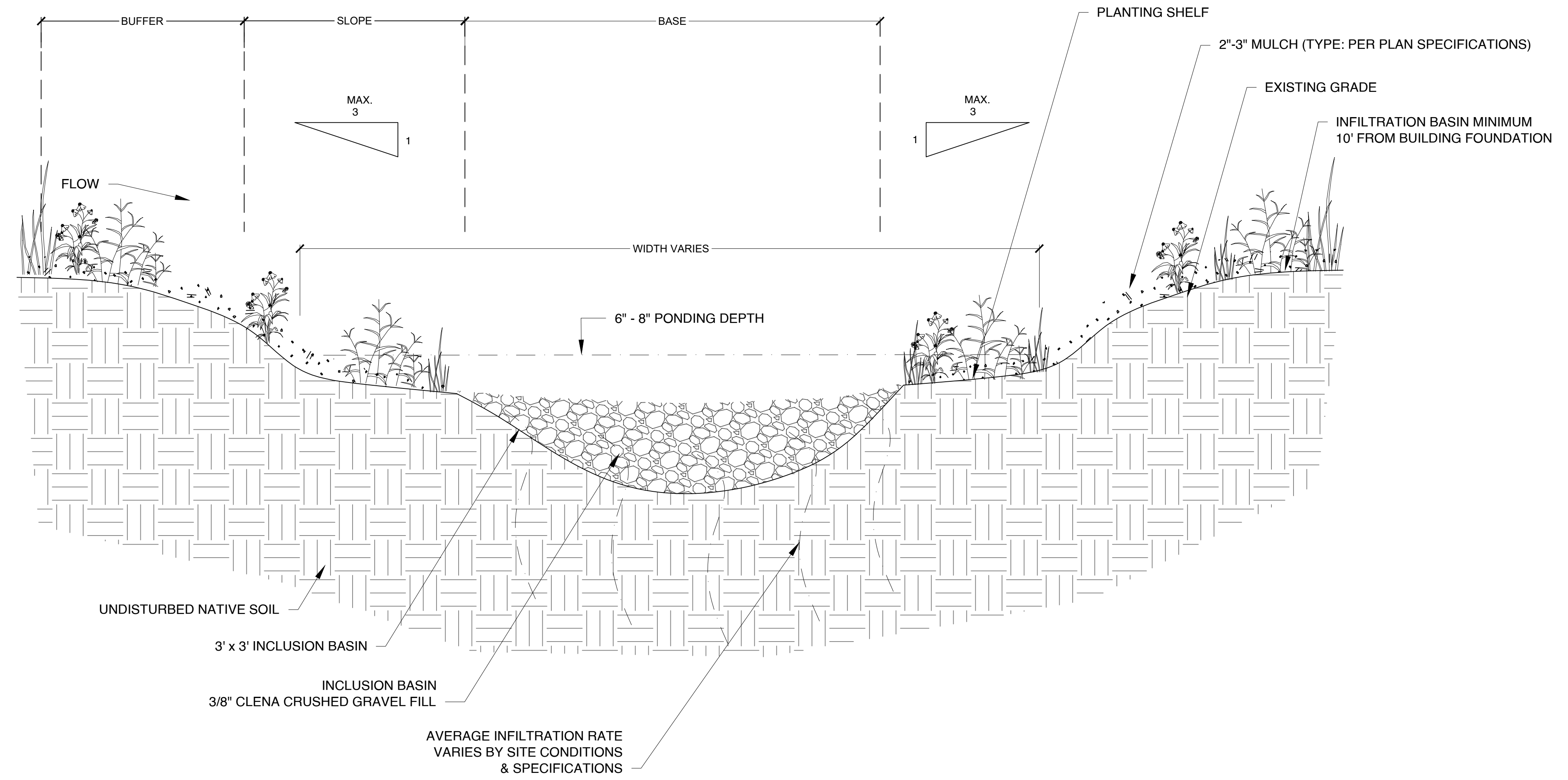
**2** CHECK DAM CROSS SECTION  
(N.T.S.)

**DETAIL NOTES:**

- 1) (E) GRADE - ADJACENT SURFACES MAY VARY
- 2) UNCOMPACTED SUB GRADE
- 3) NATIVE SWALE BASIN PLANTS - REFERENCE PLANTING PLAN
- 4) GRAVEL MULCH, 4-6"
- 5) CONVEYANCE AREA
- 6) (E) PAVED SURFACE
- 7) 1' WIDE GRAVEL STRIP, 6" DEPTH MAXIMUM - TO PREVENT DOWN CUTTING OF ASPHALT EDGE



**3** BIOSWALE (TYP.)  
(N.T.S.)



**4** RAIN GARDEN SECTION DETAIL (TYP.)  
(N.T.S.)

**SECTION VIEW**

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SHEET NAME:

**GRADING AND DRAINAGE DETAILS**

SHEET NO.:

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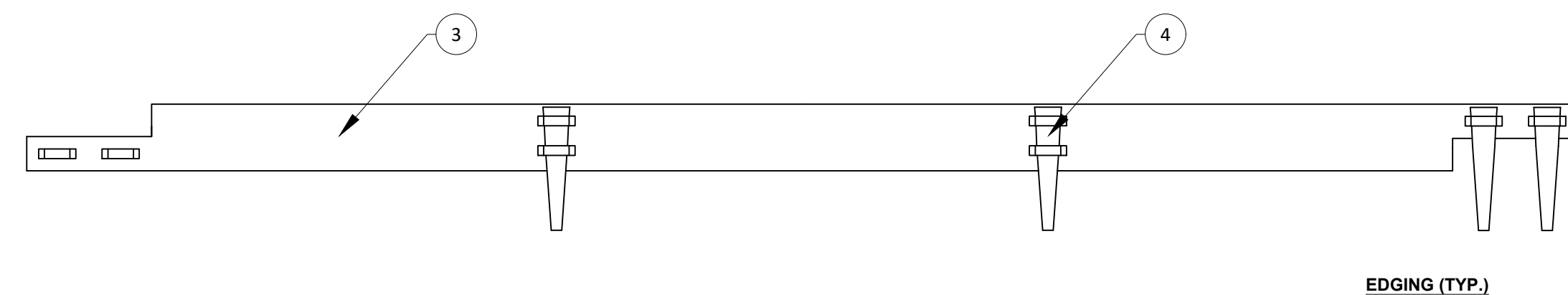
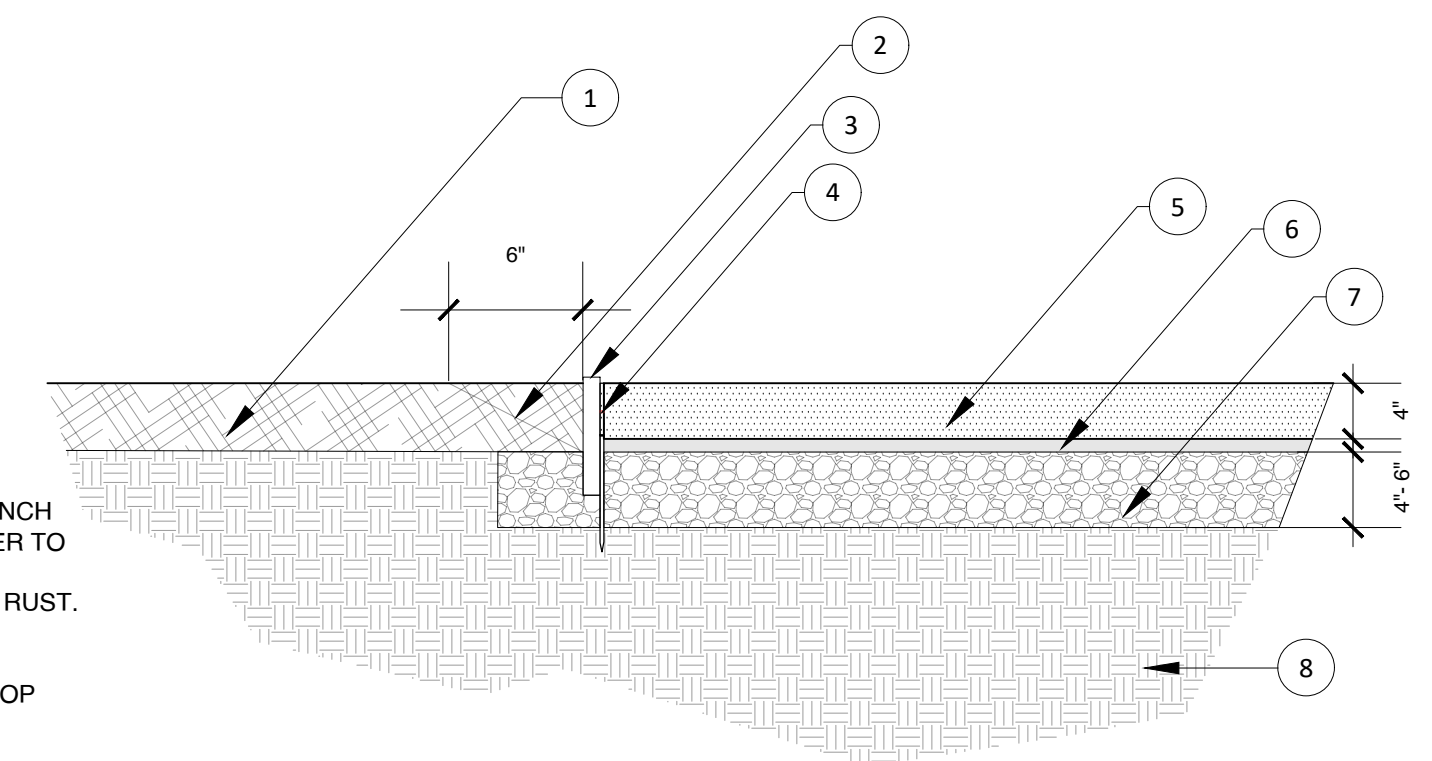
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DETAIL NOTES:

- 1) FINISHED GRADE AT MULCH
- 2) 45-DEGREE TAPER TO ENSURE MULCH STAYS IN PLACE
- 3) METAL EDGING
- 4) METAL EDGING STAKES
- 5) DECOMPOSED GRANITE
- 6) GEO-TEXTILE FABRIC
- 7) CLASS II AGGREGATE BASE
- 8) COMPACTED SUB-GRADE

GENERAL NOTES:

- A. ADJACENT MULCH/TURF/LANDSCAPE SURFACE WITH A MIN. 6-INCH OFFSET FROM METAL EDGING ALONG WITH A 45-DEGREE TAPER TO ENSURE MULCH STAYS IN PLACE.
- B. UTILIZE GALVANIZED OR COATED METAL EDGING TO PREVENT RUST.
- C. DECOMPOSED GRANITE  
SIZE: FINE TO 1/4" PARTICLE SIZE  
INSTALL IN 1/2" LAYERS, EACH LAYER COMPACTED 90% WITH TOP LAYER MINIMUM 75% DUST FINES; ADD STABILIZER PER MANUFACTURER SPECIFICATIONS AND RECOMMENDATIONS.



1 LANDSCAPING EDGING - DECOMPOSED GRANITE PAVING (TYP)  
(N.T.S)

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SHEET NAME:

MATERIAL  
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LEGEND

- PROPERTY BOUNDARY
- 1795- EXISTING CONTOURS

IRRIGATION LEGEND

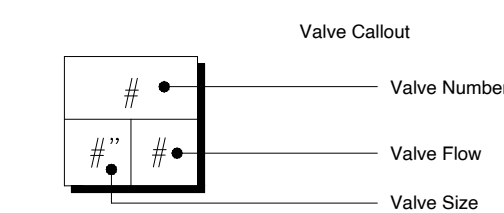
- | SYMBOL | MANUFACTURER/MODEL/DESCRIPTION   |
|--------|--|
|        | RAIN BIRD XCZ-100-1VM 1" WIDE FLOW IVM DRIP CONTROL KIT FOR COMMERCIAL APPLICATIONS. 1IN. BALL VALVE WITH 1IN. PESBIVM SMART VALVE W/ FACTORY INSTALLED IVM-SOL 0.3-20 GPM AND 1IN. PRESSURE REGULATING 40PSI FLOW-INDICATING BASKET FILTER 0.3-20 GPM |
|        | PIPE TRANSITION POINT ABOVE GRADE<br>PVC LATERAL TO DRIP TUBING  |

AREA TO RECEIVE DRIP EMITTERS  
1/2IN. FEMALE THREADED POINT SOURCE DRIP EMITTER. COLOR CODED EMITTERS FOR FLOW RATES OF 0.5 GPH - 6.0 GPH. RECOMMENDED PRESSURE FROM 20 PSI-50 PSI.

EMITTER NOTES:  
05 EMITTERS (2 ASSIGNED TO EACH 1 GAL. PLANT)  
05 EMITTERS (4 ASSIGNED TO EACH 15 GAL. PLANT)

- | SYMBOL | MANUFACTURER/MODEL/DESCRIPTION  |
|--------|---|
|        | RAINWATER POC W/MAKEUP MUNICIPAL WATER  |
|        | RAIN BIRD ESP-2WIRE (120VAC) INDOOR/ OUTDOOR CONTROLLER W/ DECODER AUTO-ADDRESS. STANDARD DIRECT BURIAL WIRE. |
|        | RAIN BIRD RSD-BEX RAIN SENSOR, WITH METAL LATCHING BRACKET  |

- IRRIGATION EMITTER LINE: POLY 1/2" TUBING
- IRRIGATION LATERAL LINE: PVC SCHEDULE 40 1"
- IRRIGATION MAINLINE: PVC SCHEDULE 40
- PIPE SLEEVE: PVC CLASS 200 SDR 21



SHEET NOTES

1. INSTALLATION OF DRIP EMITTERS: INSTALL DRIP EMITTERS QUANTITIES AS SPECIFIED IN IRRIGATION SCHEDULE BY PLANT SIZE.
2. INSTALLATION OF IRRIGATION VALVES: INSTALL JUMBO VALVE BOX IN GROUND. REFERENCE IRRIGATION DETAILS FOR SPECIFICATIONS.
3. INSTALLATION OF PIPE SLEEVES UNDER PATHWAYS AS SPECIFIED IN PLAN AND SCHEDULE.

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DRAWN BY:MS, MG  
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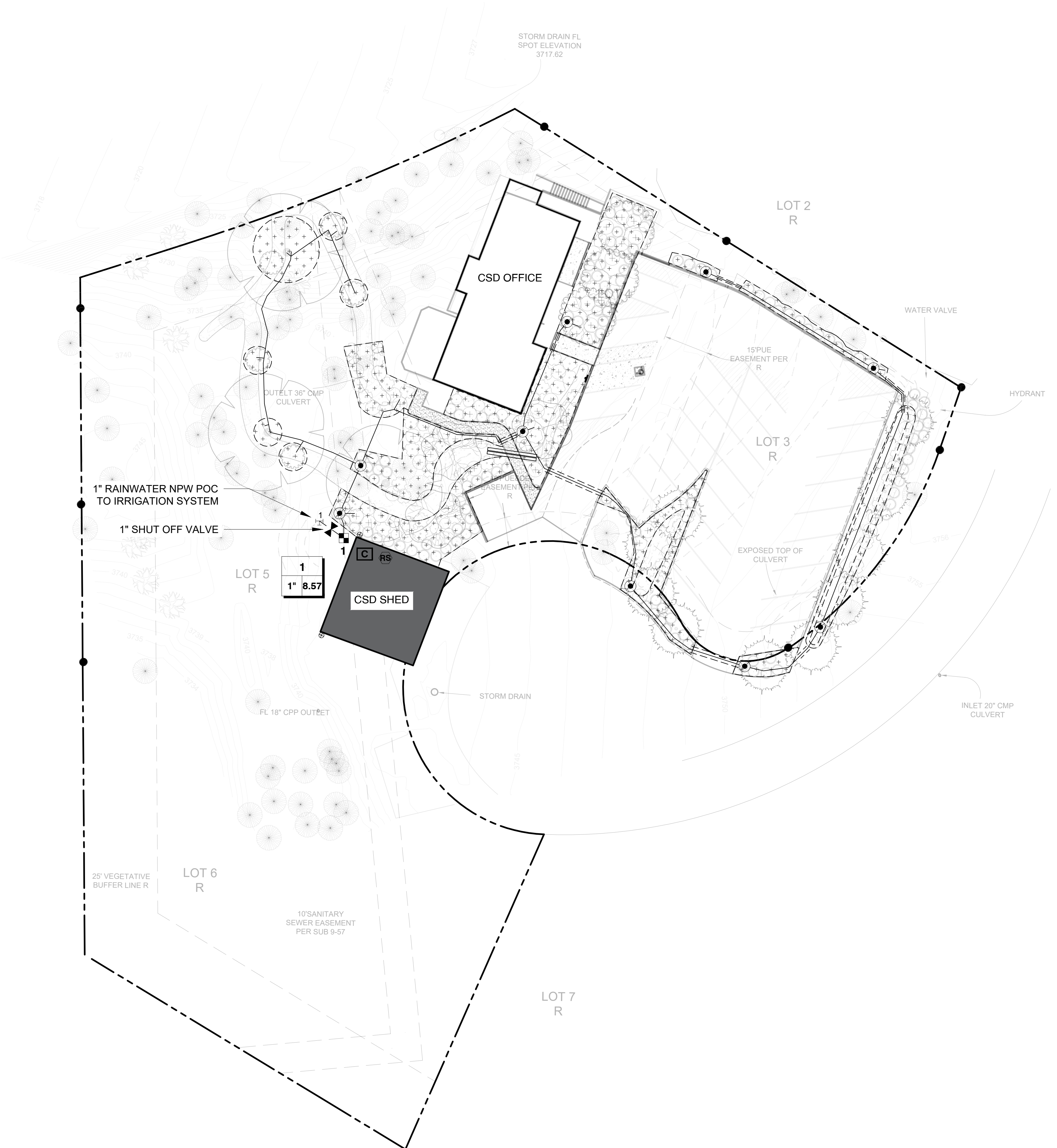
SHEET NAME:

IRRIGATION PLAN

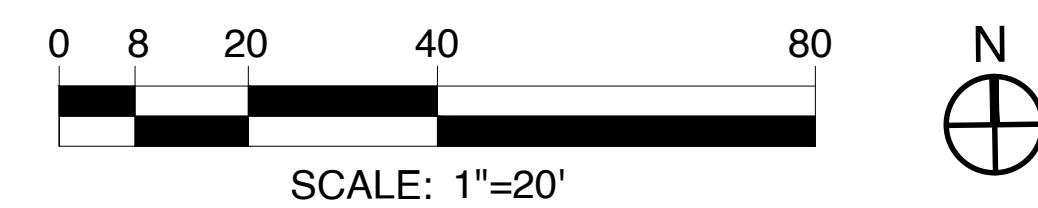
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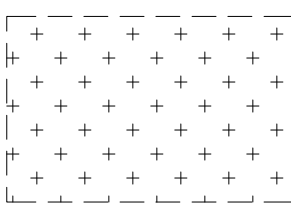






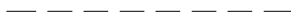


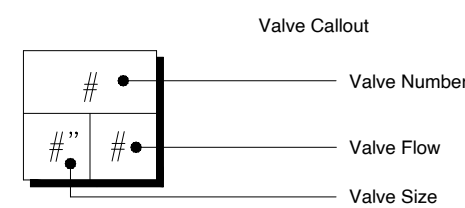
1 IRRIGATION PLAN



SCALE: 1"=20'

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XZ-100-IVM 1" WIDE FLOW IVM DRIP CONTROL KIT FOR COMMERCIAL APPLICATIONS. 1IN. BALL VALVE WITH 1IN. PESBVM SMART VALVE W/ FACTORY INSTALLED IVM-SOL 0.3-20 GPM AND 1IN. PRESSURE REGULATING 40PSI FLOW-INDICATING BASKET FILTER 0.3-20 GPM	1
	PIPE TRANSITION POINT ABOVE GRADE PVC LATERAL TO DRIP TUBING	7
	AREA TO RECEIVE DRIP EMITTERS 1/2IN. FEMALE THREADED POINT SOURCE DRIP EMITTER. COLOR CODED EMITTERS FOR FLOW RATES OF 0.5 GPH - 6.0 GPH. RECOMMENDED PRESSURE FROM 20 PSI-50 PSI.	4,394 s.f.
	EMITTER NOTES: 05 EMITTERS (2 ASSIGNED TO EACH 1 GAL. PLANT) 05 EMITTERS (4 ASSIGNED TO EACH 15 GAL. PLANT)	870
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAINWATER POC W/MAKEUP MUNICIPAL WATER	1
	RAIN BIRD ESP-2WIRE (120VAC) INDOOR/ OUTDOOR CONTROLLER W/ DECODER AUTO-ADDRESS. STANDARD DIRECT BURIAL WIRE.	1
	RAIN BIRD RSD-BEx RAIN SENSOR, WITH METAL LATCHING BRACKET	1
	IRRIGATION EMITTER LINE: POLY 1/2" TUBING	500 l.f.
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40 1"	180 l.f.
	IRRIGATION MAINLINE: PVC SCHEDULE 40	10 l.f.
	PIPE SLEEVE: PVC CLASS 200 SDR 21	60 l.f.



IRRIGATION NOTES

1. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS AND RELATED WORK PRIOR TO CONSTRUCTION.
2. COORDINATE UTILITY LOCATIONS ("CALL BEFORE YOU DIG - 811") PRIOR TO CONSTRUCTION.
3. AREAS, AS IDENTIFIED TO HAVE NEW IRRIGATION SYSTEM, SHALL BE INSTALLED IN CONFORMANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES BY LICENSED CONTRACTORS AND EXPERIENCED WORKMEN.
4. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE THEMSELVES WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, EXISTING TREES ETC. CONTRACTOR SHALL REFERENCE PLAN AND SPECIFICATIONS AS NOTED, FOR THE LOCATION, SIZE AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, PAVING, STRUCTURES, ETC. EXACT LOCATIONS TO BE FILED DIRECTED. CONTRACTOR TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND STRUCTURES PRIOR TO THE EXCAVATION OF TRENCHES. CONTRACTOR TO VERIFY LOCATION OF EXISTING TREES WHERE NEW IRRIGATION IS TO BE INSTALLED. ALL EXISTING TREES SHALL BE PROTECTED AGAINST EXCAVATION DAMAGE. CONTRACTOR TO REPAIR ANY DAMAGE CAUSED BY WORK AT NO ADDITIONAL COST TO THE OWNER.
5. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL WORK AND PLAN WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC. AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. THE WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEMS, PLANTING AND ARCHITECTURAL FEATURES.
6. DO NOT PROCEED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. IF DISCREPANCIES IN CONSTRUCTION DETAILS, LEGEND NOTES OR SPECIFICATIONS ARE DISCOVERED, BRING ALL SUCH OBSTRUCTIONS OR DISCREPANCIES TO THE ATTENTION OF THE OWNERS' REPRESENTATIVE.
7. IRRIGATION SYSTEM DESIGNED FOR A MINIMUM 70 PSI (STATIC PRESSURE) TO BE PROVIDED AT THE FARTHEST HEAD FROM POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNERS' AUTHORIZED REPRESENTATIVE. CONTRACTOR TO VERIFY PRESSURE ON SITE.
8. IRRIGATION POINT OF CONNECTIONS SHOWN ON PLAN MUST BE VERIFIED AT THE SITE. COORDINATE WITH EXISTING UTILITIES PLAN FOR RE-LOCATING POINT OF CONNECTION TO A LOCATION WHICH BEST SUITS SITE CONDITIONS AND IRRIGATION ZONE REQUIREMENTS.
9. SLEEVE MAINLINE AND LATERALS UNDER ALL PAVING AND WALLS. REFERENCE SCHEDULE FOR SIZE, TYPE AND QUANTITIES.
10. ALL IRRIGATION MAINLINES AND LATERALS TO BE TRENCHED AND BURIED SUB-SURFACE.
11. UN-SIZED LATERAL LINE PIPE DOWNSTREAM FROM SIZED PIPE SHALL BE 1-1/2" FOR VALVE LATERALS OR 1/2" FOR DRIP/EMITTER LATERALS.
12. SPLICING OF 24-VOLT WIRES WILL NOT BE PERMITTED EXCEPT IN VALVE BOXES. LEAVE A 24" COIL OF EXCESS WIRE AT EACH SPLICE AND 100 FEET ON CENTER ALONG WIRE RUN. TAPE WIRE IN BUNDLES 10 FEET ON CENTER. NO TAPING PERMITTED INSIDE SLEEVES.
13. ALL MAIN LINES SHALL BE FLUSHED PRIOR TO THE INSTALLATION OF IRRIGATION EQUIPMENT. AT 30 DAYS AFTER INSTALLATION EACH SYSTEM SHALL BE FLUSHED TO ELIMINATE GLUE AND DIRT PARTICLES FROM THE LINES.
14. NOTIFY OWNER'S REPRESENTATIVE OF ANY ASPECTS OF LAYOUT THAT WILL PROVIDE INCOMPLETE OR INSUFFICIENT WATER COVERAGE OF PLANT MATERIAL AND DO NOT PROCEED UNTIL THE INSTRUCTIONS ARE OBTAINED.
15. ALL EXCAVATIONS ARE TO BE FILLED WITH COMPACTED BACKFILL. BACKFILL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED 8" LOOSE DEPTH, AND COMPACTED TO A MINIMUM OF 95 PERCENT OF STANDARD MAXIMUM DENSITY (ASTM D 698). CONTRACTOR TO REPAIR ALL SETTLED TRENCHES PROMPTLY.
16. OPERATE IRRIGATION BETWEEN THE HOURS OF 10:00 PM AND 8:00 AM AND/OR PER AVAILABLE EXISTING SCHEDULE WITHIN THE HOURS SPECIFIED.
17. 1" RAINWATER LINE TO BE USED AS IRRIGATION POINT OF CONNECTION / MAIN LINE.
18. PROVIDE THE FOLLOWING COMPONENTS TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT:
  - I. OPERATING KEYS/CONTROL MEASURE FOR EACH OPERATED VALVE(S).
  - II. SERVICING WRENCH OR TOOL NEEDED FOR COMPLETE ACCESS, ADJUSTMENT, AND REPAIR OF ALL VALVES/IRRIGATION EQUIPMENT.
19. TO BE NOTED: PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.
20. TO BE NOTED: DUE TO GRADE AND ELEVATION CONSTRAINTS, CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL NODES WHERE LOW POINT DRAINAGE COULD OCCUR.
21. TO BE NOTED: REGARDING PIPE SIZING - IF A SECTION OF UN-SIZED PIPE IS LOCATED BETWEEN THE IDENTICALLY SIZED SECTIONS, THE UN-SIZED PIPE IS THE SAME NOMINAL SIZE AS THE TWO SIZED SECTIONS. THE UN-SIZED PIPE SHOULD NOT BE CONFUSED WITH THE DEFAULT PIPE SIZE NOTED IN THE LEGEND.
22. TO BE NOTED: AREAS TO RECEIVE DRIP LINE/GRID SHALL HAVE DRIP TUBE FLUSH VALVES AT THE LOWEST ELEVATION RELATIVE TO THE IRRIGATION VALVE POINT OF CONNECTION AND DRIP TUBE AIR RELIEF VALVES AT THE HIGHEST POINT RELATIVE TO THE IRRIGATION VALVE POINT OF CONNECTION.
23. ALL POINT SOURCE EMITTER POLY LINES SHALL ALSO RECEIVE FLUSH VALVES AND AIR VALVES RELATIVE TO THE IRRIGATION VALVE POINT OF CONNECTION.
24. REFER TO PLANTING PLAN FOR PLANT MATERIAL NAMES, ABBREVIATIONS, SPECIFIC SIZES, ON-CENTER SPACING, AND ADDITIONAL INFORMATION.
25. DO NOT INSTALL DRIP LINE TUBING UNDER PAVED SURFACES. CONNECT DRIP LINE TUBING TO SCHEDULE 40 PVC LATERAL LINE PIPING FOR ROUTING UNDER PAVED SURFACES AND SCHEDULE 80 PVC PIPING FOR ROUTING THROUGH PLANTER WALLS. ADAPT DRIP LINE TUBING TO PVC PIPING AS REQUIRED WITH COMPRESSION ADAPTER FITTINGS.
26. REFERENCE PIPE TRANSITION POINTS FOR ADAPTING PVC TO DRIP TUBING AND POLY TUBING FOR EMITTERS.
27. MANUAL SHUT OFF VALVES SHALL BE REQUIRED AND INSTALLED AT EACH POINT OF CONNECTION PRIOR TO IRRIGATION VALVE MANIFOLD.



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Twain Harte Community Service District  
22912 Vantage Point Dr. Twain Harte, CA 95383

DATE:  
PROJECT NO.

REVISION	DATE
1 60% SUBMITTAL	06.06.24
2 100% SUBMITTAL	06.26.24
3 100% SUBMITTAL v2	07.05.24
4 100% SUBMITTAL v3	08.09.24
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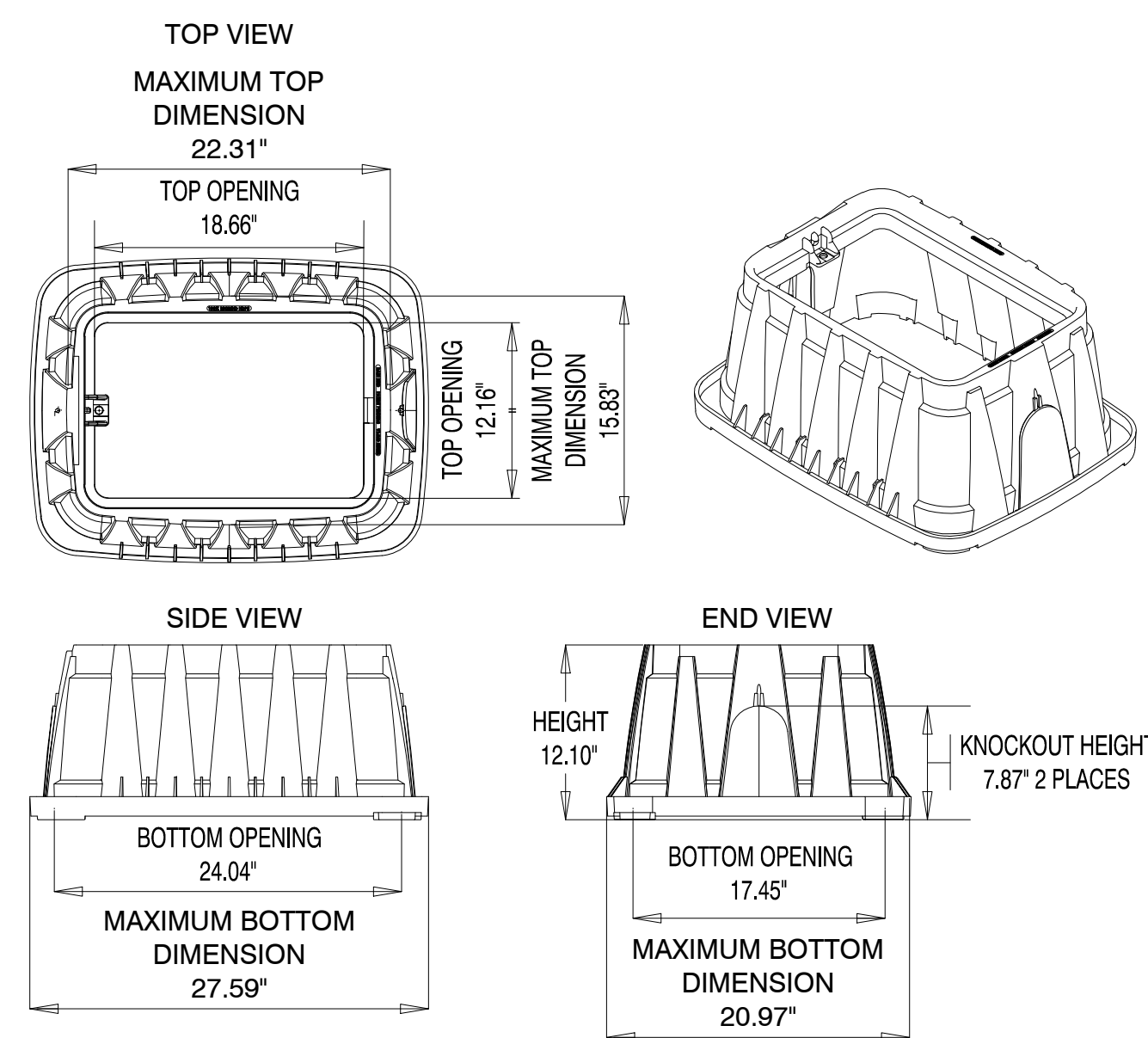
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IRRIGATION SCHEDULE NOTES

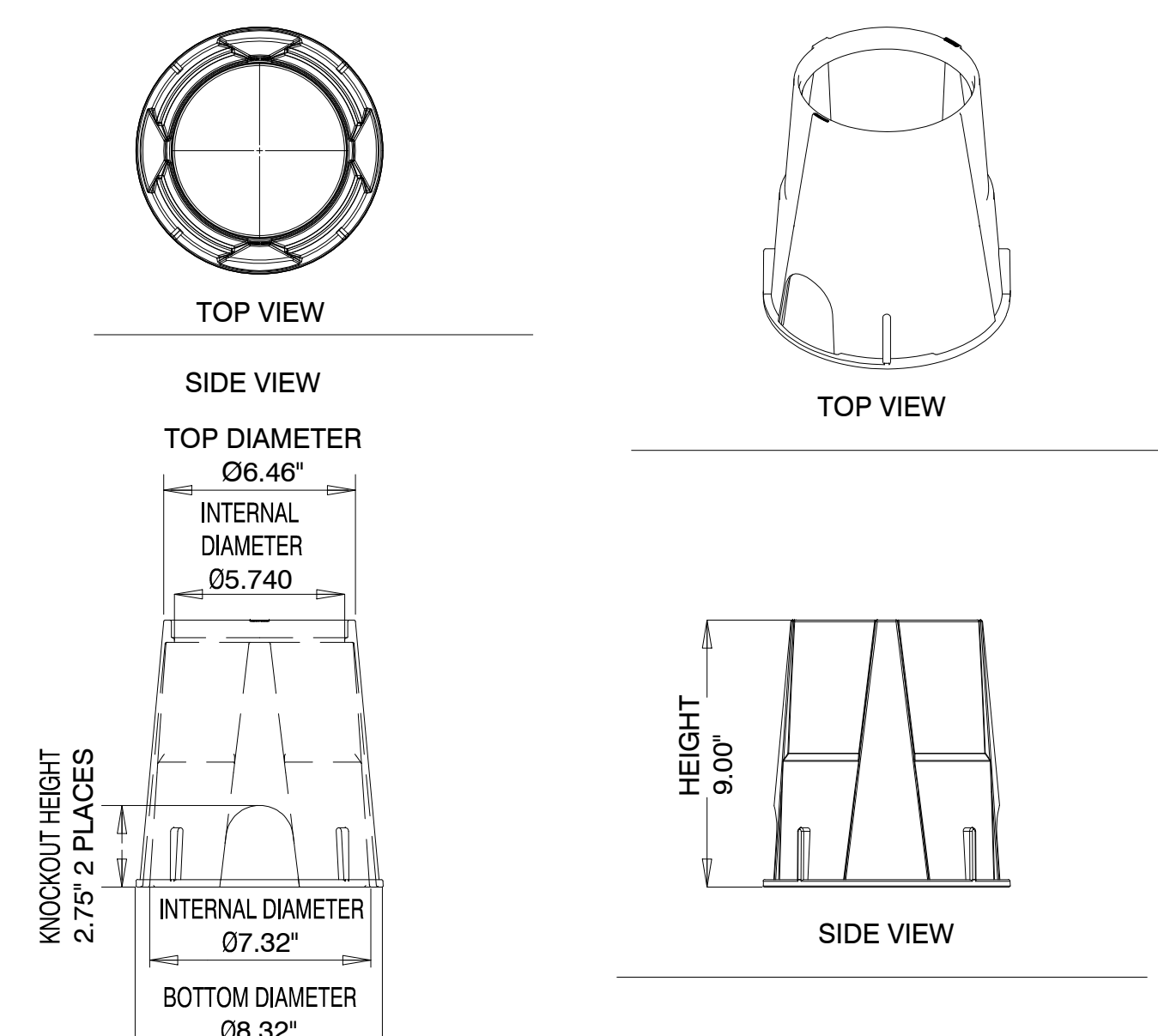
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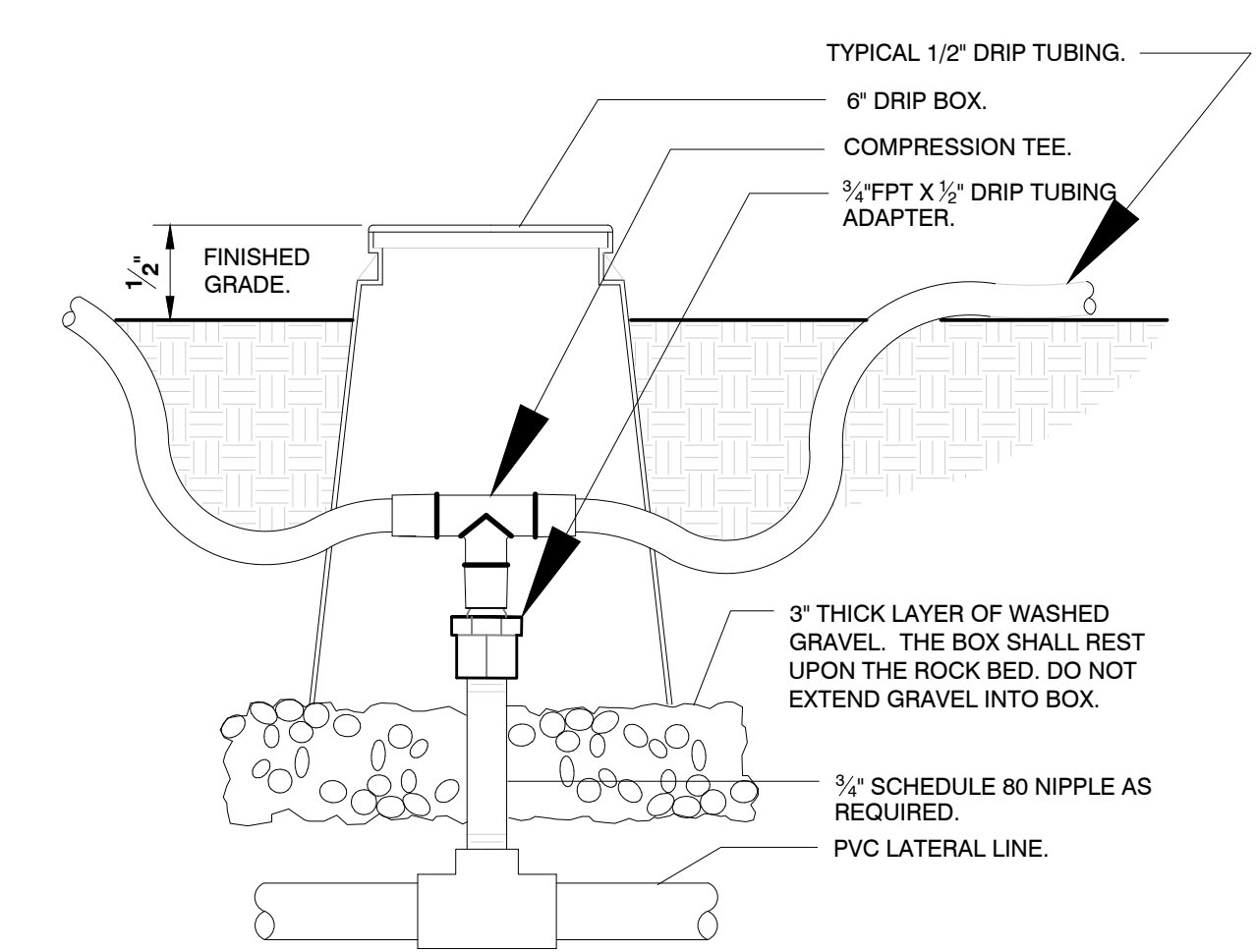
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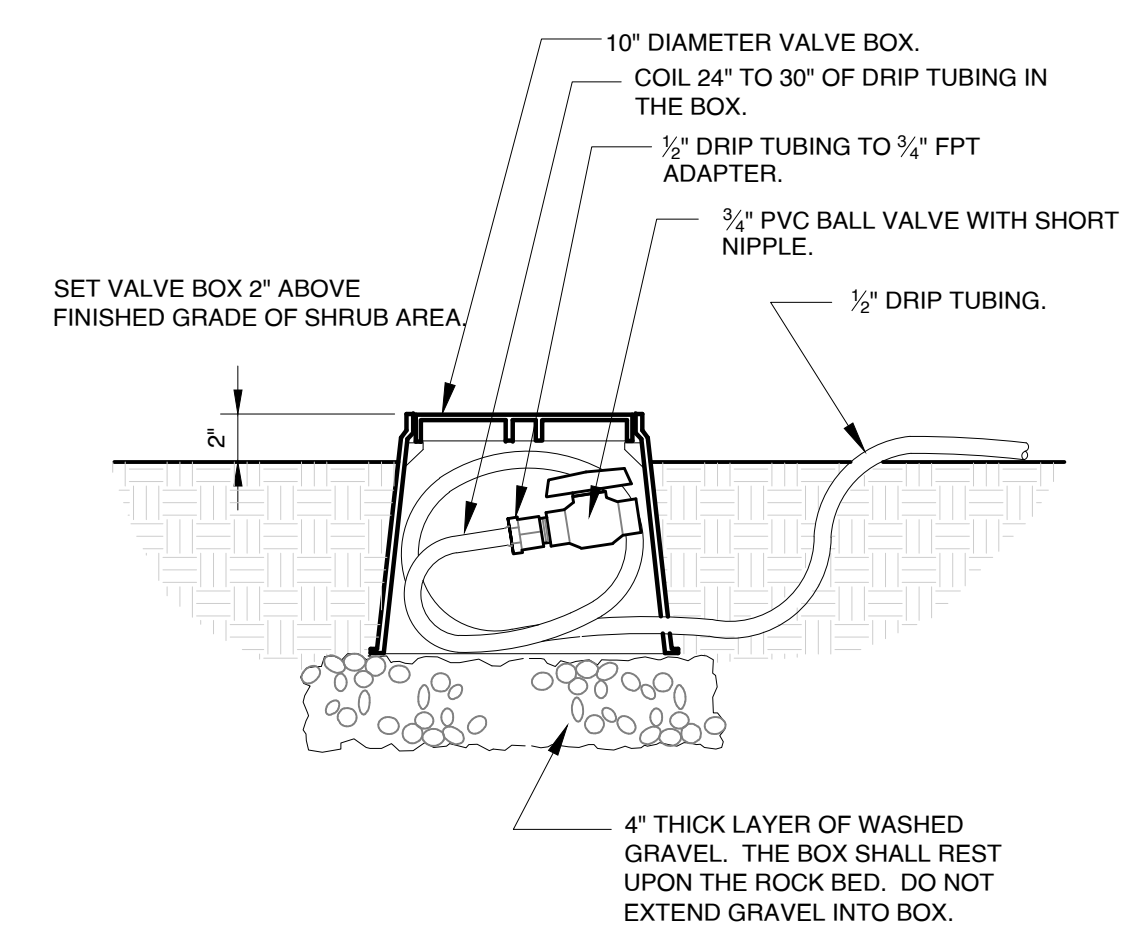
**1 JUMBO VALVE BOX DIMENSIONS**  
 Not To Scale



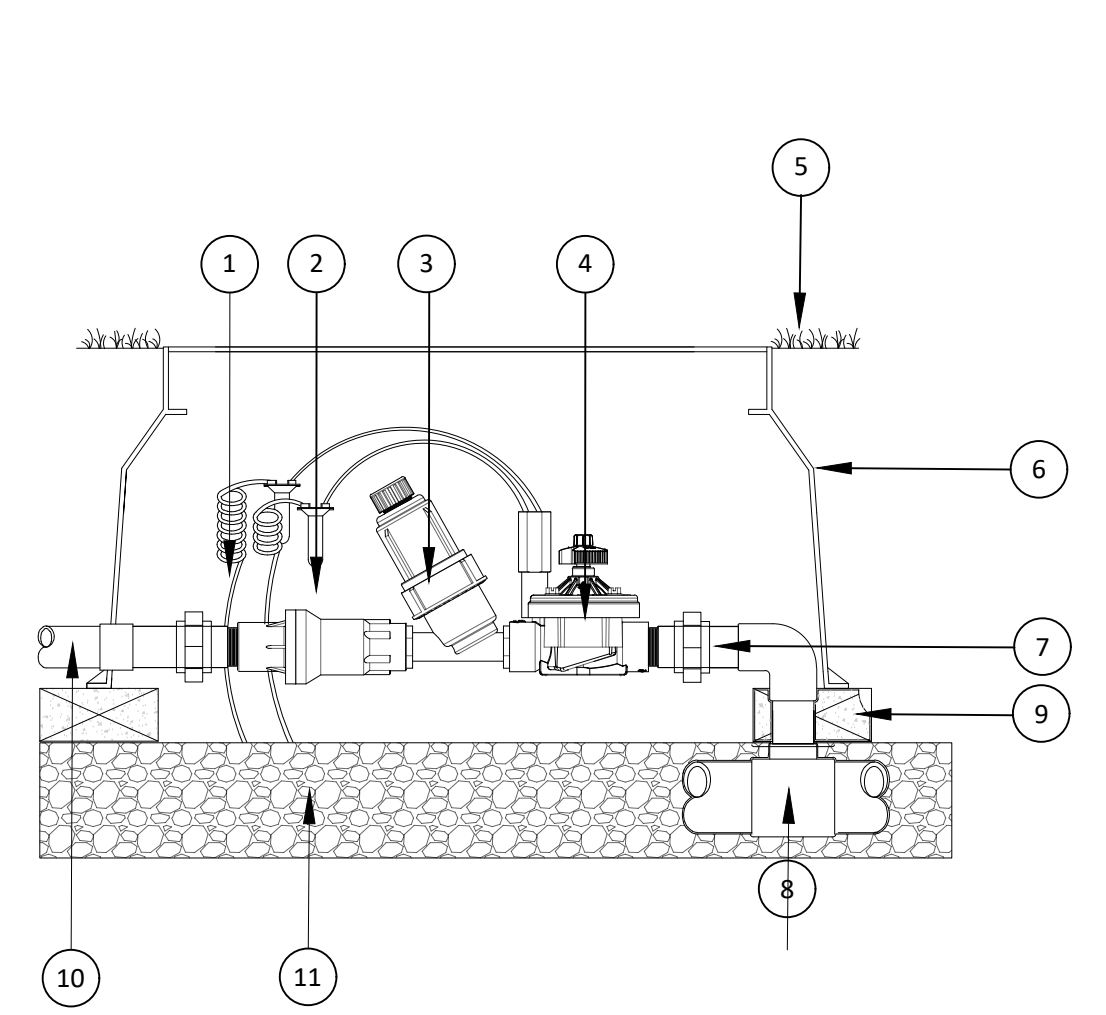
**2 6" ROUND VALVE BOX DIMENSIONS**  
 Not To Scale



**3 PIPE TRANSITION POINT**  
 Not To Scale

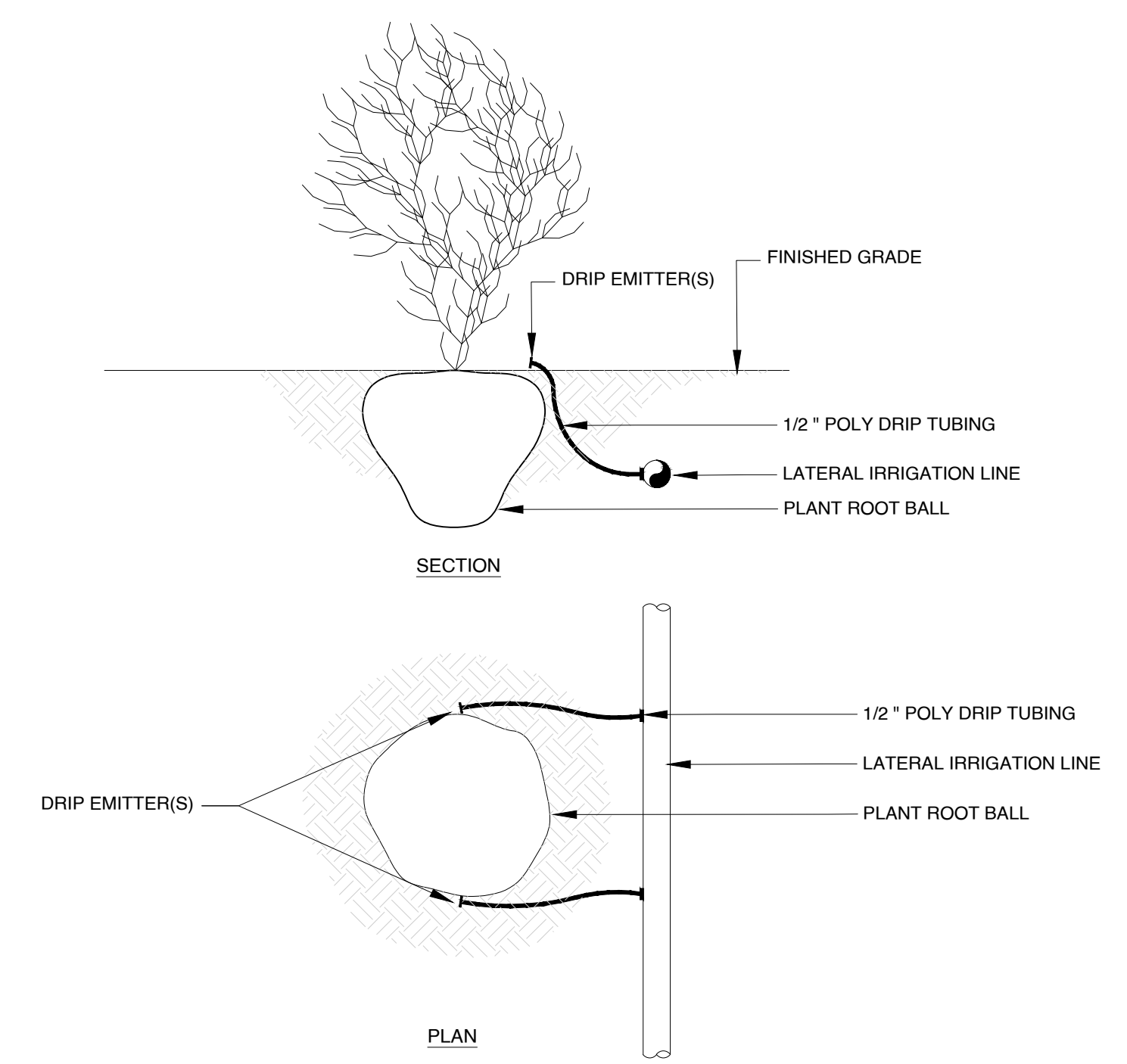


**4 DRIP IRRIGATION-EMITTER FLUSH VALVE**  
 Not To Scale



- DETAIL NOTES:**
- 18-24" COILED WIRE
  - WATERPROOF CONNECTORS
  - Y-FILTER + PRESSURE REGULATOR (25 OR 40-PSI)
  - IRRIGATION CONTROL VALVE (REF. IRRIGATION SPECIFICATIONS FOR MODEL)
  - FINISH GRADE
  - JUMBO VALVE BOX
  - SCH-80 UNIONS
  - MAINLINE PIPE & FITTINGS
  - BRICK SUPPORTS (4)
  - TO IRRIGATION LATERAL LINE
  - 3/4" MINUS WASHED GRAVEL

**5 IRRIGATION CONTROL VALVE W/ FILTER + UNIONS**  
 Not To Scale



**6 DRIP EMITTER PLACEMENT (TREES, SHRUBS)**  
 Not To Scale

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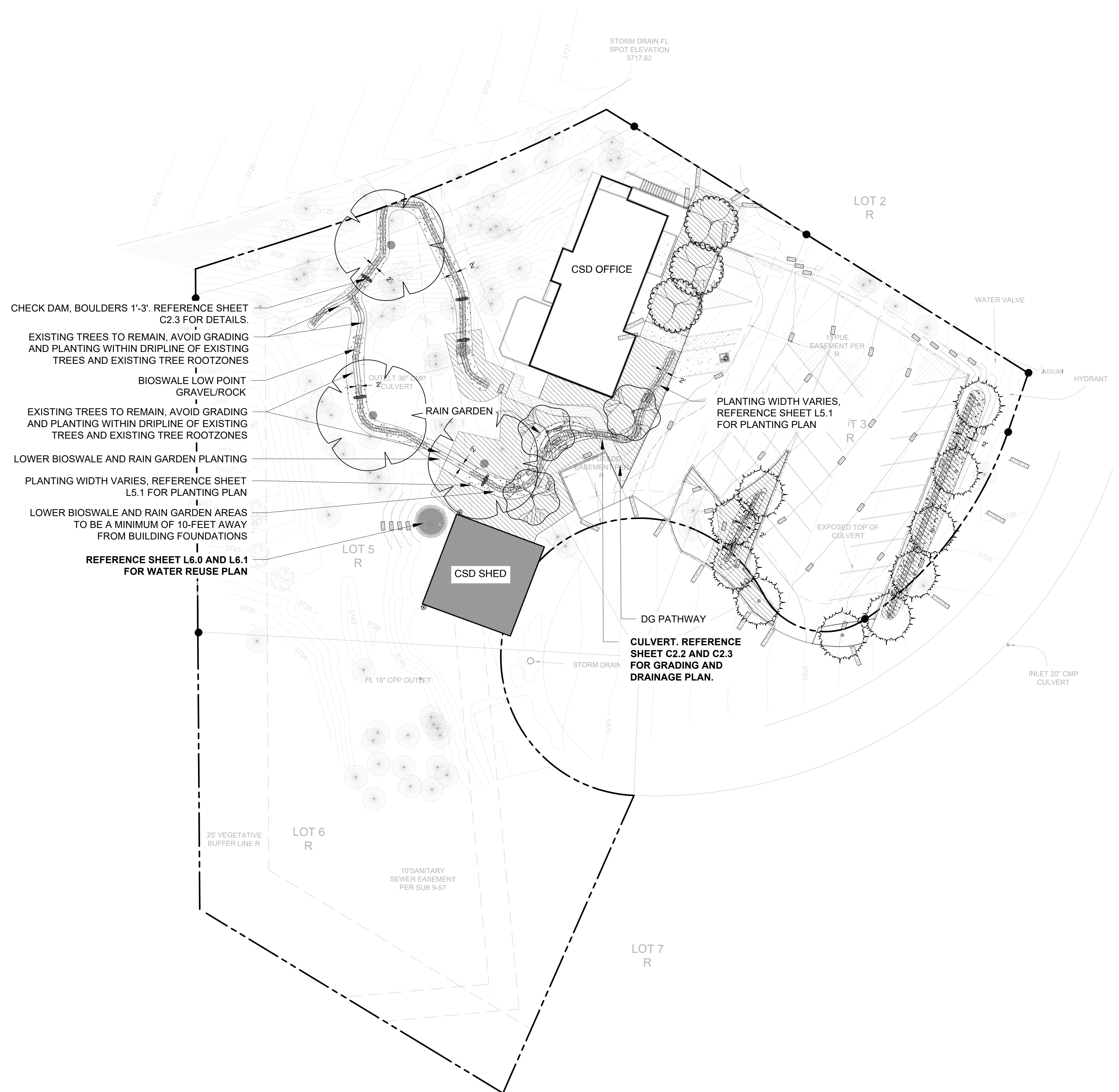
**IRRIGATION DETAILS**

SHEET NO.:

**L3.2**

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1 PLANTING ZONES PLAN



CHECK DAM, BOULDERS 1'-3'. REFERENCE SHEET C2.3 FOR DETAILS.

EXISTING TREES TO REMAIN, AVOID GRADING AND PLANTING WITHIN DRIPLINE OF EXISTING TREES AND EXISTING TREE ROOTZONES

BIOSWALE LOW POINT GRAVEL/ROCK

EXISTING TREES TO REMAIN, AVOID GRADING AND PLANTING WITHIN DRIPLINE OF EXISTING TREES AND EXISTING TREE ROOTZONES

LOWER BIOSWALE AND RAIN GARDEN PLANTING

PLANTING WIDTH VARIES, REFERENCE SHEET L5.1 FOR PLANTING PLAN

LOWER BIOSWALE AND RAIN GARDEN AREAS TO BE A MINIMUM OF 10- FEET AWAY FROM BUILDING FOUNDATIONS

REFERENCE SHEET L6.0 AND L6.1 FOR WATER REUSE PLAN

GENERAL NOTES

- A. ALL EXISTING TANKS, PIPING, AND ELECTRICAL WORK SHALL BE AVOIDED AND PROTECTED WHEN NECESSARY THROUGHOUT CONSTRUCTION.
- B. 811 - KNOW WHAT'S BELOW - CALL BEFORE YOU DIG
- C. TOPOGRAPHIC DATA SHOWN IS BASED ON A SURVEY CONDUCTED BY DAVID RAGLAND, ENGINEERING AND LAND SURVEYING. THE ELEVATIONS SHOWN ON THIS SHEET ARE DERIVED FROM A FIELD SURVEY FROM MARCH 2024; THE BEARINGS AND DISTANCES ARE RECORD PER PARCEL MAP 28-98 AND R/S 41-97 NAVD88.
- D. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE CREATED TO REPRESENT THE CONCEPTS AS ASSOCIATED WITH ON-SITE WATER REUSE INSTALLATIONS. FOR ALL SITE DIMENSIONS AND EXACT RELATIVE LOCATIONS, FIELD CONDITION AS-BUILTS SHALL BE REQUESTED FROM THE PROPERTY OWNER.

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING FENCE
- EXISTING CONTOURS
- RAINWATER COLLECTION SURFACE
- ROCK CHECK DAM
- EXISTING TREE(S)

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME
<b>TREES</b>		
	<i>Acer macrophyllum</i>	Big Leaf Maple
	<i>Amelanchier alnifolia</i>	Serviceberry
	<i>Populus tremuloides</i>	Quaking Aspen
	<i>Pseudotsuga menziesii</i>	Douglas Fir
	LOWER BIOSWALE AND RAIN GARDEN PLANTING	
	UPPER BIOSWALE AND RAIN GARDEN PLANTING	
	BIOSWALE AND RAIN GARDEN LOW POINT GRAVEL/ROCK	



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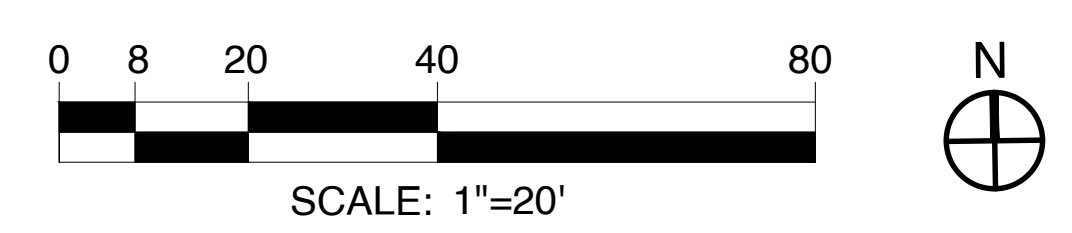
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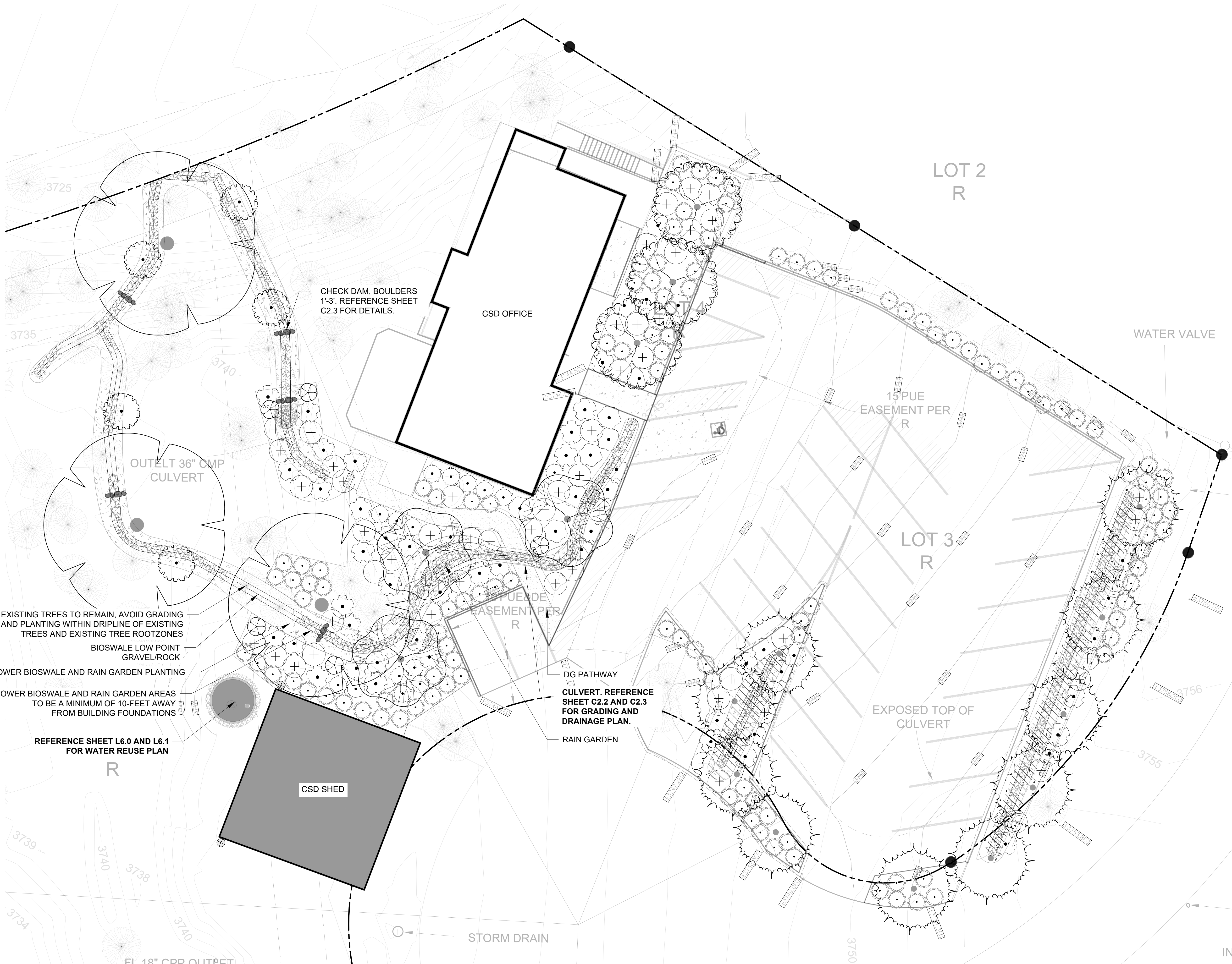
PLANTING ZONES PLAN

SHEET NO.:

L5.0

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- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - - - EXISTING FENCE
  - 1795- EXISTING CONTOURS
  - ▭ EXISTING BUILDING
  - ROCK CHECK DAM
  - EXISTING TREE(S)



**PLANT SCHEDULE**

SYMBOL	BOTANICAL NAME	COMMON NAME
<b>TREES</b>		
○	<i>Acer macrophyllum</i>	Big Leaf Maple
○	<i>Amelanchier alnifolia</i>	Serviceberry
○	<i>Populus tremuloides</i>	Quaking Aspen
○	<i>Pseudotsuga menziesii</i>	Douglas Fir
<b>SHRUBS</b>		
○	<i>Cornus sericea</i>	Red Twig Dogwood
○	<i>Eriogonum fasciculatum</i>	California Buckwheat
○	<i>Eriogonum umbellatum</i>	Sulfur Buckwheat
○	<i>Mimulus aurantiacus</i>	Bush Monkey Flower
○	<i>Penstemon heterophyllus</i>	Beardtongue
○	<i>Physocarpus capitatus</i>	Pacific Ninebark
<b>GROUND COVERS</b>		
○	<i>Arctostaphylos uva-ursi</i>	Bearberry
▨	Native Seed Plant Mix	Native Seed Plant Mix

**NATIVE SEED PLANT MIX FOR RAIN GARDEN**

BOTANICAL NAME	COMMON NAME
<i>Achillea millefolium</i>	Common Yarrow
<i>Carex divulsa</i> "Berkeley Sedge"	Berkeley Sedge
<i>Leymus condensatus</i> "Canyon Prince"	Canyon Prince Giant Wildrye
<i>Sisyrinchium bellum</i>	Blue Eyed Grass

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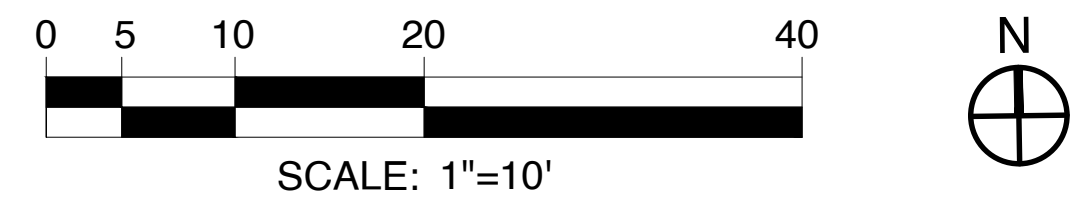
**PLANTING PLAN**

SHEET NO.:

**L5.1**

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**1 PLANTING PLAN**



SITE PREPARATION

- CONTRACTOR SHALL BE AWARE OF ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY OF ANY COST.
- DO NOT PROCEED WITH CONSTRUCTION AS DESIGNED IF OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF WATERSHED PROGRESSIVE PROJECT MANAGER. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.

SOIL PREPARATION

- PRIOR TO STARTING WORK, CONTRACTOR SHALL TAKE SOIL SAMPLES WHERE DIFFERENT SOIL TYPES ARE ENCOUNTERED ON THE PROJECT SITE. SOIL SHALL BE ANALYZED BY AN APPROVED COMMERCIAL SOIL TESTING LABORATORY (TRI-C ENTERPRISES, 1-800-392-3311, OR FRUIT GROWERS LABORATORY, 805-392-2000), OR EQUAL, FOR SUITABILITY FOR ORNAMENTAL PLANTING. A COPY OF THE RESULTS OF THIS ANALYSIS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE SOILS LAB AS TO THE RATE AND ANALYSIS OF FERTILIZER & AMENDMENTS TO PROVIDE A SUITABLE MEDIUM FOR PLANTING. THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT OF ANY POTENTIAL PROBLEMS WHICH MAY RESULT DUE TO HARMFUL SUBSTANCES FOUND IN THE SOIL. FAILURE TO ACT AS SPECIFIED MAY RESULT IN THE CONTRACTOR ASSUMING FINANCIAL RESPONSIBILITY FOR ANY DAMAGE TO PLANTS.
- REMOVE ROCKS LARGER THAN 3" FROM PLANTING AREAS.
- FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.
- ON-SITE SOILS WITH AN ORGANIC CONTENT OF AT LEAST 5 PERCENT CAN BE PROPERLY STOCKPILED (TO MAINTAIN ORGANIC CONTENT) AND REUSED.
- CONTRACTOR TO LOOSEN COMPACTED SOILS AND MIX SOIL AMENDMENTS AND CONDITIONERS TO A MINIMUM DEPTH OF 12 INCHES IN PLANTING AREAS.

FINISHED GRADES IN PLANTING AREAS

- THE CONTRACTOR SHALL ALLOW FOR THE ADDITION OF SPECIFIED QUANTITIES OF SOIL AMENDMENTS AND CONDITIONERS IN SOIL PREPARATION AND FINISH GRADING.
- THE LANDSCAPE ARCHITECT WILL APPROVE FINISH GRADES AT ALL LANDSCAPE AREAS PRIOR TO PLANTING.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO ESTABLISH THE SPECIFIED FINISHED ELEVATION, INCLUDING IMPORTING SOIL OR EXCAVATION, REMOVAL AND DISPOSAL AT AN APPROVED LOCATION. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTARY AMENDED IMPORT SOIL IN ANY PLANTING AREAS AS NECESSARY TO ACHIEVE THE SPECIFIED FINISH PLANTING GRADES. IMPORTED SOIL SHALL BE FREE OF UNWANTED SEEDS.

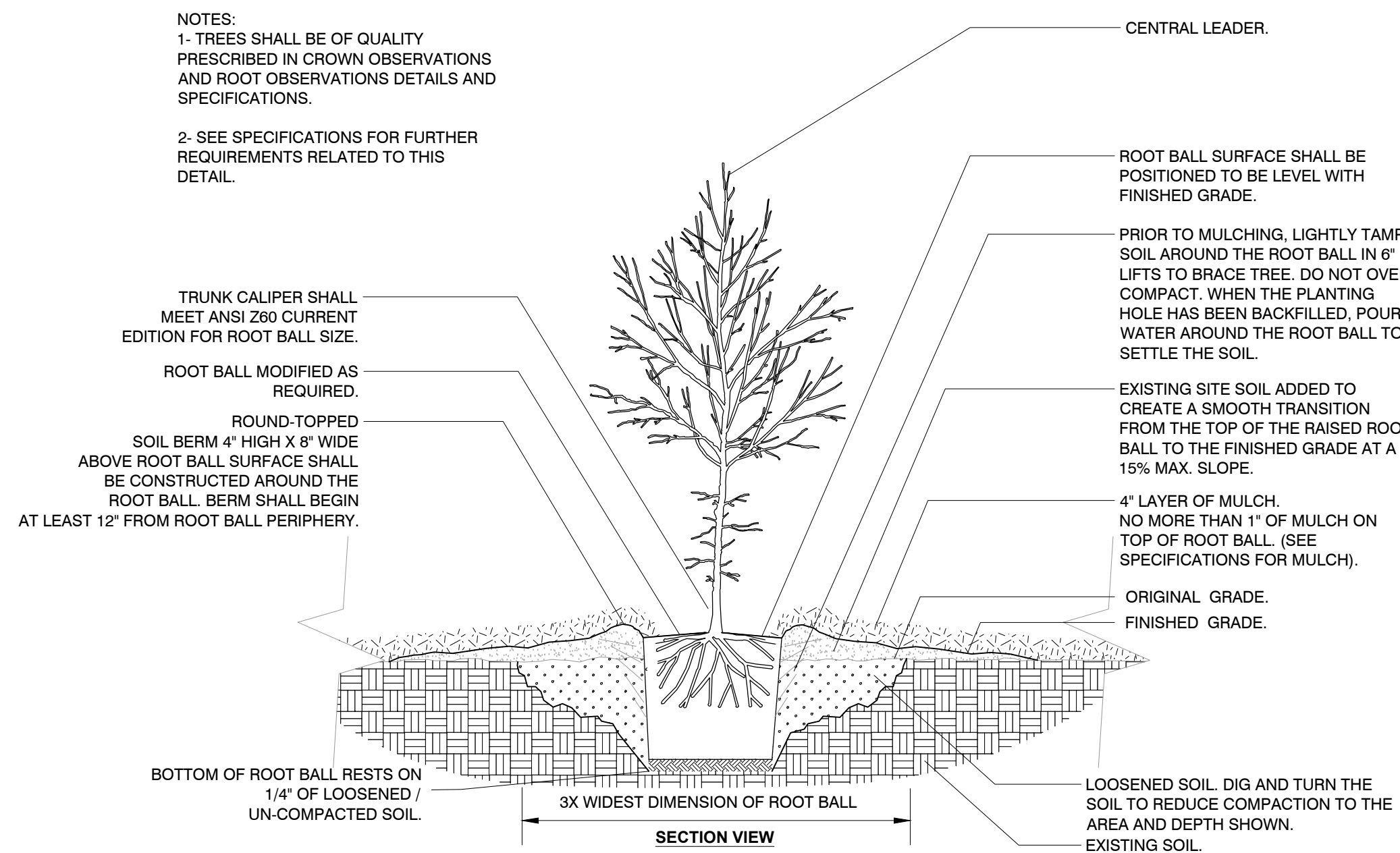
PLANTING

- COORDINATE INSTALLATION OF LARGE PLANT MATERIAL WITH INSTALLATION OF STRUCTURES SUCH AS WALL FOOTINGS, PAVEMENTS, AND CURB AND GUTTER. ANY DAMAGE TO IMPROVEMENTS BY OTHERS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL FURNISH PLANT MATERIAL FREE OF PESTS OR PLANT DISEASES. CONTRACTOR SHALL WARRANTY ALL PLANT MATERIALS PER THE SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE HEALTHY, VIGOROUS PLANT STOCK GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THE CONDITIONS IN THE LOCALITY OF THE PROJECT.
- SPECIMEN TREES WILL BE SELECTED AND TAGGED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION.
- CONTRACTOR SHALL DO THEIR OWN QUANTITY TAKE-OFFS FOR ALL PLANT MATERIALS AND SIZES SHOWN ON PLANS.
- ALL SUBSTITUTIONS SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.
- SEE DETAILS AND SPECIFICATIONS FOR STAKING METHOD, PLANT PIT DIMENSIONS AND BACKFILL REQUIREMENTS.
- PLANT CROWN ELEVATIONS RELATIVE TO FINISH GRADE ARE SHOWN ON PLANTING DETAILS AND SHALL BE STRICTLY ADHERED TO. PROPER COMPACTION OF BACKFILL TO PREVENT SETTLEMENT SHALL BE REQUIRED.
- TREES AND SHRUBS SHALL BE INSTALLED PRIOR TO PLANTING GROUND COVER. ALL TREE LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE LANDSCAPE ARCHITECT.
- THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST THE LOCATION OF PLANT MATERIAL DURING INSTALLATION AS APPROPRIATE TO THE PROJECT.
- A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUND COVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRA-INDICATED. MULCH MUST BE APPROVED BY LANDSCAPE ARCHITECT.

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER NEEDS	QTY	
<b>TREES</b>						
	Acer macrophyllum	Big Leaf Maple	15 gal.	Medium	3	
	Amelanchier alnifolia	Serviceberry	15 gal.	Medium	3	
	Populus tremuloides	Quaking Aspen	15 gal.	Medium	3	
	Pseudotsuga menziesii	Douglas Fir	15 gal.	Low	10	
<b>SHRUBS</b>						
	Cornus sericea	Red Twig Dogwood	1 gal.	Medium	5	
	Eriogonum fasciculatum	California Buckwheat	1 gal.	Low	15	
	Eriogonum umbellatum	Sulfur Buckwheat	1 gal.	Low	10	
	Mimulus aurantiacus	Bush Monkey Flower	1 gal.	Low	49	
	Penstemon heterophyllus	Beardtongue	1 gal.	Low	54	
	Physocarpus capitatus	Pacific Ninebark	1 gal.	Medium	5	
<b>GROUND COVERS</b>						
	Arctostaphylos uva-ursi	Bearberry	1 gal.	Low	117	
<b>SYMBOL BOTANICAL NAME COMMON NAME SIZE WATER NEEDS SPACING QTY</b>						
	Native Seed Plant Mix	Native Seed Plant Mix	Seed	Low		1,212 sf

NATIVE SEED PLANT MIX FOR RAIN GARDEN	
BOTANICAL NAME	COMMON NAME
Achillea millefolium	Common Yarrow
Carex divulsa "Berkeley Sedge"	Berkeley Sedge
Leymus condensatus 'Canyon Prince'	Canyon Prince Giant Wildrye
Sisyrinchium bellum	Blue Eyed Grass



1 TREE PLANTING

1/2" = 1'-0"

GENERAL NOTES

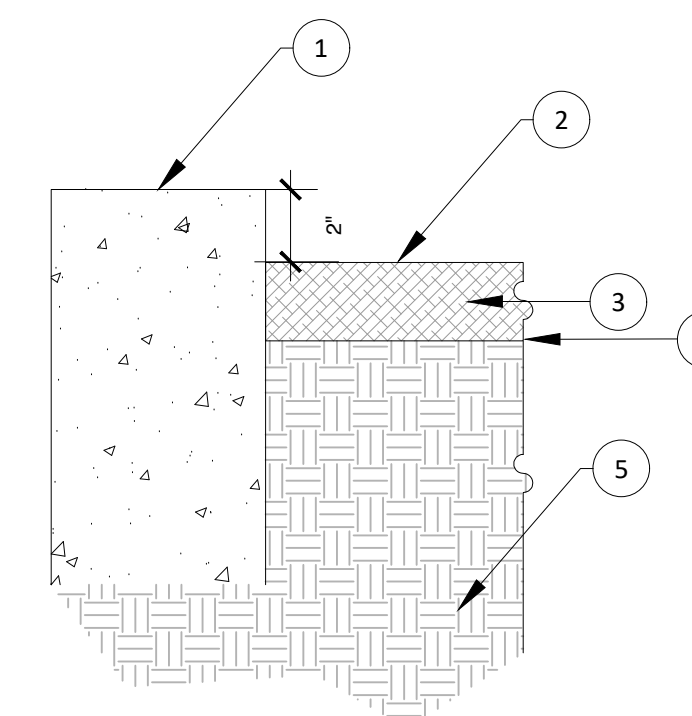
- ALL EXISTING TANKS, PIPING, AND ELECTRICAL WORK SHALL BE AVOIDED AND PROTECTED WHEN NECESSARY THROUGHOUT CONSTRUCTION.
- 811 - KNOW WHAT'S BELOW - CALL BEFORE YOU DIG
- TOPOGRAPHIC DATA SHOW IS BASED ON A SURVEY CONDUCTED BY DAVID RAGLAND, ENGINEERING AND LAND SURVEYING. THE ELEVATIONS SHOWN ON THIS SHEET ARE DERIVED FROM A FIELD SURVEY FROM MARCH 2024; THE BEARINGS AND DISTANCES ARE RECORD PER PARCEL MAP 28-98 AND R/S 41-97 NAVD88.
- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE CREATED TO REPRESENT THE CONCEPTS AS ASSOCIATED WITH ON-SITE WATER REUSE INSTALLATIONS. FOR ALL SITE DIMENSIONS AND EXACT RELATIVE LOCATIONS, FIELD CONDITION AS-BUILTS SHALL BE REQUESTED FROM THE PROPERTY OWNER.

DETAIL NOTES:

- CONCRETE CURB
- FINISHED GRADE AT MULCH
- 2"-4" DEPTH WOOD CHIPS/MULCH
- GRADE SUB-GRADE SMOOTH AND FREE OF DEBRIS
- EXISTING SOIL - REMOVE SOIL SUFFICIENT DEPTH BELOW ADJACENT PAVING AND WALLS TO ALLOW PROPER DEPTH OF MULCH INSTALLATION.

GENERAL NOTES:

- HOLD MULCH 2" BELOW TOP OF ADJACENT CURBS.

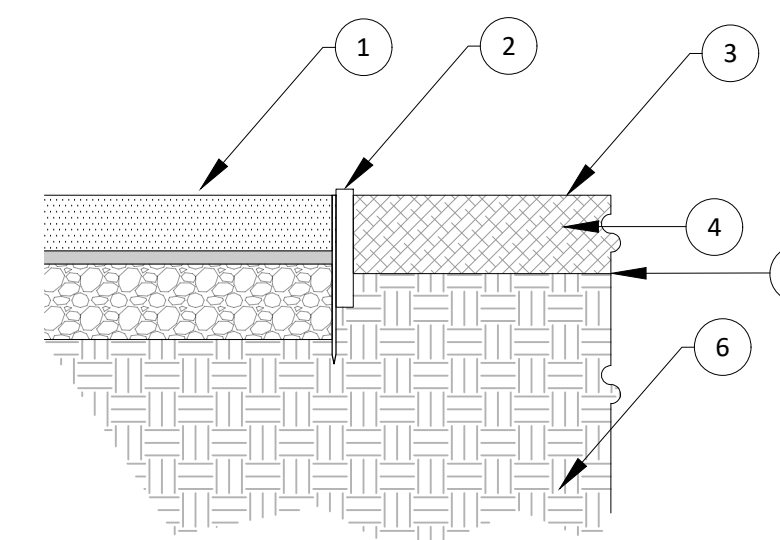


4 WOOD CHIPS / MULCH - ALONG CONCRETE CURB

(N.T.S)

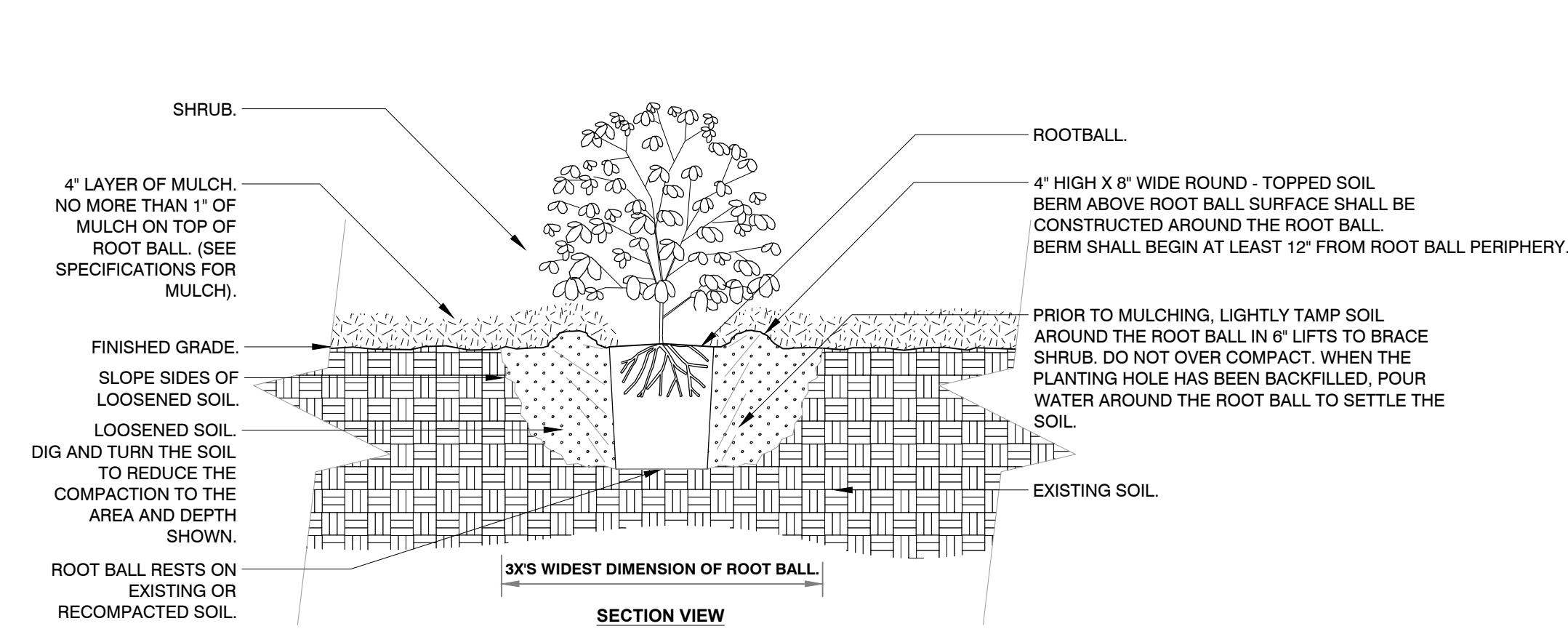
DETAIL NOTES:

- DG PATHWAY
- LANDSCAPE EDGING WITH STAKES
- FINISHED GRADE AT MULCH
- 2"-4" DEPTH WOOD CHIPS/MULCH
- GRADE SUB-GRADE SMOOTH AND FREE OF DEBRIS
- EXISTING SOIL - REMOVE SOIL SUFFICIENT DEPTH BELOW ADJACENT PAVING AND WALLS TO ALLOW PROPER DEPTH OF MULCH INSTALLATION.



3 WOOD CHIPS / MULCH - ALONG DECOMPOSED GRANITE PATHWAY

(N.T.S)



NOTES:

- SHRUBS SHALL BE OF QUALITY PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS.
- SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

2 SHRUB PLANTING

3/4" = 1'-0"



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REVISION	DATE
1 60% SUBMITTAL	06.06.24
2 100% SUBMITTAL	06.26.24
3 100% SUBMITTAL v2	07.05.24
4 100% SUBMITTAL v3	08.09.24
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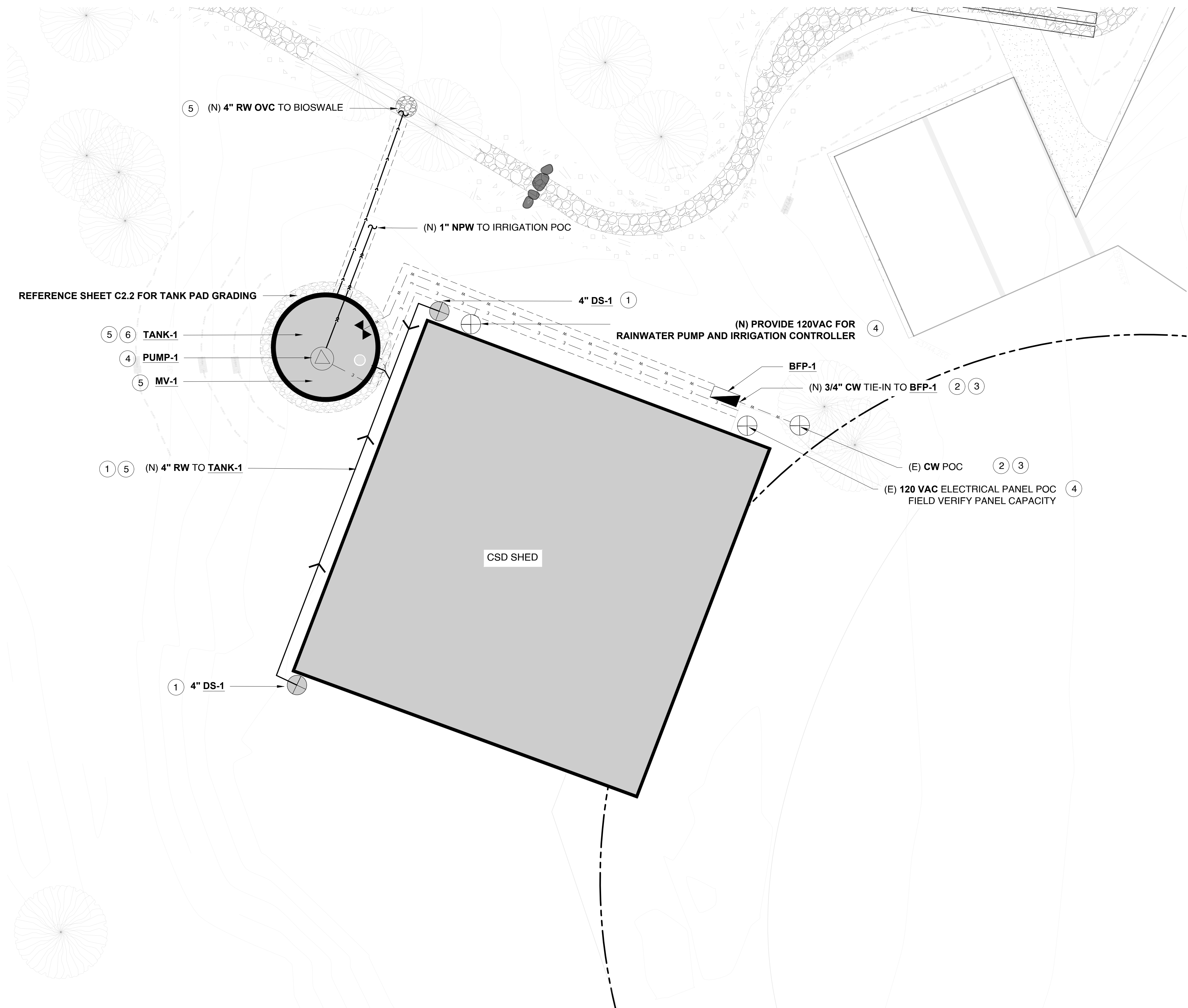
SHEET NAME:

PLANTING DETAILS

SHEET NO.:

L5.2

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GENERAL NOTES

- A. ALL EXISTING TANKS, PIPING, AND ELECTRICAL WORK SHALL BE AVOIDED AND PROTECTED WHEN NECESSARY THROUGHOUT CONSTRUCTION.
- B. 811 - KNOW WHAT'S BELOW - CALL BEFORE YOU DIG
- C. TOPOGRAPHIC DATA SHOW IS BASED ON A SURVEY CONDUCTED BY DAVID RAGLAND, ENGINEERING AND LAND SURVEYING. THE ELEVATIONS SHOWN ON THIS SHEET ARE DERIVED FROM A FIELD SURVEY FROM MARCH 2024; THE BEARINGS AND DISTANCES ARE RECORD PER PARCEL MAP 28-98 AND R/S 41-97 NAVD88.
- D. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE CREATED TO REPRESENT THE CONCEPTS AS ASSOCIATED WITH ON-SITE WATER REUSE INSTALLATIONS. FOR ALL SITE DIMENSIONS AND EXACT RELATIVE LOCATIONS, FIELD CONDITION AS-BUILTS SHALL BE REQUESTED FROM THE PROPERTY OWNER. .
- E. REFER TO COVER SHEET FOR LEGEND AND ABBREVIATIONS.
- F. CONTRACTOR TO VERIFY ROOF GUTTER ELEVATIONS ARE ABOVE TANK INLET AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
- G. PIPING MATERIAL SHALL BE THE FOLLOWING AND PER PIPE SCHEDULES:
  - G.A. BELOW GROUND: SCHEDULE 40 PVC
  - G.B. ABOVE GROUND: SCHEDULE 80 PVC

SHEET NOTES

1. UTILIZE EXISTING 4" DIA. (MINIMUM) GUTTER AT 1/8" SLOPE. PROVIDE 4" DOWNSPOUT CONNECTIONS AND FIRST FLUSH ASSEMBLY AND LEAF EATER AT LOCATIONS INDICATED. REFERENCE EQUIPMENT SCHEDULES.
2. ROUTE NEW CW LINE TO BFP-1 POC FROM EXISTING WATER METER VALVE TO TANK BELOW GRADE. REFER TO DETAILS FOR TRENCHING REQUIREMENTS.
3. 3/4" CW MAKEUP LINE TO TANK SHALL BE INSULATED ABOVE GROUND.
4. ROUTE NEW ELECTRICAL LINE FROM EXISTING ELECTRICAL SUB PANEL FOR RAINWATER TANK PUMP AND IRRIGATION CONTROLLER WITH A NEW DEDICATED 20AMP BREAKER AND WEATHER PROOF OUTLET. ALL ELECTRICAL SHALL BE INSTALLED AND ROUTED BY LICENSED ELECTRICIAN. REFERENCE ELECTRICAL SPECIFICATIONS.
5. INSTALL RAINWATER INLET AND MAKEUP WATER VALVE AS HIGH AS POSSIBLE.
6. RAINWATER OVERFLOW ON TANK SHALL BE INSTALLED AT-LEAST 2" BELOW RAINWATER INLET HEIGHT AND MAKEUP WATER VALVE TO ENSURE AIR GAP.

FIRST FLUSH CALCULATIONS - TANK 1 DOWNSPOUTS		
ROOF DRAINAGE CHARACTERISTICS		
ROOF CAPTURE AREA PER DS	1160	FT <sup>2</sup>
1-INCH STORM VOLUME	97	FT <sup>3</sup>
	723	GAL
FIRST FLUSH DESIGN		
PIPE SIZE	4	IN
PIPE LENGTH	3	FT
WATER VOLUME WITHIN PIPE	1.96	GAL
% VOLUME OF 1-INCH STORM	0.27%	GALLONS
TOTAL WATER WEIGHT	16.33	LB

LEGEND

- (RW) RAINWATER CONVEYANCE
- TRENCH
- ELECTRICAL LINE
- CW MAKEUP WATER LINE
- (OVC) OVERFLOW CONVEYANCE
- (NPW) NON POTABLE WATER
- DOWNSPOUT
- POINT OF CONNECTION
- BACKFLOW PREVENTER
- MAKEUP WATER VALVE
- PUMP
- RAINWATER TANK
- RAINWATER COLLECTION SURFACE



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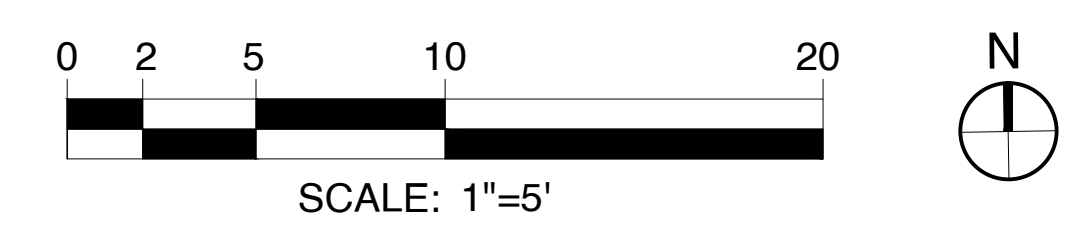
WATER REUSE PLAN

SHEET NO.:

W6.0

100% DESIGN

1 WATER REUSE PLAN



**WATER REUSE GENERAL NOTES:**

- A. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE CREATED R. TO REPRESENT THE CONCEPTS AS ASSOCIATED WITH ON-SITE WATER REUSE AND STORM WATER MANAGEMENT / BASIN INSTALLATIONS. FOR ALL SITE DIMENSIONS AND EXACT RELATIVE LOCATIONS, FIELD CONDITION AS-BUILTS SHOULD BE REQUESTED FROM THE PROPERTY OWNER.
- B. ABOVE GROUND RAINWATER TANKS:
  - B.A. EACH OUTLET SHALL BE MARKED 'CAUTION NON-POTABLE RAINU. WATER, DO NOT DRINK' IN BLACK, CAPITAL LETTERING.
  - B.B. TANKS INSTALLED ABOVE GROUND SHALL BE OF AN OPAQUE MATERIAL OR SHIELDED FROM SUNLIGHT
  - B.C. RAINWATER TANKS MUST BE INSTALLED WITH A MEANS OF SUFFICIENT VENTING, DRAINING AND CLEANING, INCLUDING ACCESS FOR CLEANING/INSPECTION
  - B.D. OVERFLOW SIZING SHALL MATCH OR EXCEED THE AREA OF ALL THE INFLOW PIPING. BACKFLOW PREVENTION FOR OVERFLOW SHALL BE EQUIPPED IF THE TANK DISCHARGES DIRECTLY TO THE STORM DRAIN SYSTEM
  - B.E. ALL TANK INLETS, VENTS AND OVERFLOWS SHALL BE PROTECTED WITH A 1/16" OR SMALLER SCREEN
  - B.F. TANK MARKING: TANKS SHALL BE PERMANENTLY MARKED WITH 'NON-POTABLE RAINWATER', PERSONNEL TANK ENTRANCES SHALL BE MARKED 'DANGER-CONFINED SPACE', PER CPC.
  - B.G. TANKS AND PIPING INSTALLED IN REGIONS KNOWN TO FREEZE MUST BE PROVIDED WITH APPROVED MEANS OF FREEZE PROTECTION. PROVIDE ABOVE GROUND PIPES WITH 1" INSULATION.
  - B.H. RAINWATER CATCHMENT INFLOW PIPING OR CONVEYANCE PIPING MUST HAVE A 'DEBRIS EXCLUDER' INSTALLED TO PREVENT LEAVES, NEEDLES AND SEDIMENT FROM ENTERING THE TANK
- C. RAINWATER PUMPS SERVING RAINWATER CATCHMENT SYSTEMS SHALL BE LISTED (APPROVED BY A LISTING AGENCY FOR EXPECTED USE)
- D. IF THE RAINWATER USE WITHIN A BUILDING EXCEEDS 80 PSI, A PRESSURE REDUCING VALVE SHALL BE INSTALLED TO REDUCE THE PRESSURE TO 80 PSI OR LESS
- D. RAINWATER PIPING SHALL BE MARKED 'CAUTION NON-POTABLE RAIN WATER, DO NOT DRINK' WITH THE INTERNATIONAL DO NOT DRINK SYMBOL OF A CIRCLED WATER GLASS WITH A DIAGONAL SLASH THROUGH IT, PER CPC REQUIREMENTS. REFER TO SAMPLE.
- E. ALL GUTTERS, ROOF DRAINS AND ASSOCIATED PIPING MUST COMPLY WITH RELEVANT CALIFORNIA BUILDING CODES
- F. RAINWATER TREATMENT DEVICES MUST PERFORM TO THE MINIMUM STANDARD DETERMINED BY THE AUTHORITY HAVING JURISDICTION
- G. ALL EQUIPMENT USED FOR RAINWATER QUALITY TREATMENT SHALL BE LISTED OR LABELED BY AN ACCREDITED LISTING AGENCY AND HAVE APPROVAL FOR THE INTENDED PURPOSE
- H. RAINWATER SIGNS IN BUILDINGS MUST FOLLOW THE GUIDELINES OF SECTIONS CPC 1602.10.1 AND 1602.10.2 AND OTHER REQUIREMENTS IN THE CALIFORNIA BUILDING CODE
- I. INSPECTION: RAINWATER CATCHMENT SYSTEMS SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH CPC SECTIONS 1602.11.1 AND 1602.11.2.
- J. INSPECTION INCLUSIONS: RAINWATER CATCHMENT SYSTEMS SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH CODE PROVISIONS FOR TESTING OF POTABLE WATER SYSTEMS AND STORM DRAINAGE SYSTEMS. STORAGE TANKS SHALL BE FILLED WITH WATER TO THE OVERFLOW LINE FOR A PERIOD OF 24 HOURS AND DURING INSPECTION. SEAMS AND JOINTS SHALL BE EXPOSED DURING INSPECTION AND CHECKED FOR WATERTIGHT-NESS.
- K. TRENCHES WILL BE COVERED DURING END OF WORK DAY AND CROSSING BOARDS LAID EVERY 4 FEET DURING WORK DAY. TRENCHES TO BE FILLED IN AND SET PROPERLY.
- L. ALL ABOVE GROUND PIPES SHALL BE PROTECTED FROM HUMAN/ANIMAL TRAFFIC BEFORE, DURING AND AFTER INSTALLATION.
- M. ALL ABOVE GROUND PIPES SHALL RECEIVE INSULATION PER DEFINED PIPE SCHEDULE CRITERIA.
- N. "WET" PLUMBING PIPES/SYSTEMS SHALL BE DRAINED AFTER THE RAINY SEASON.
- O. ALL NON -POTABLE WATER SUPPLY PIPES FROM RAINWATER TANKS AND PUMPS SHALL BE LABELED PER CPC. CH 16.
- P. ALL GRAVITY PIPES SHALL BE INSTALLED AT 1/4" / 1' SLOPE UNLESS OTHERWISE INDICATED.
- Q. ALL BURIED GRAVITY PIPES SHALL HAVE A MINIMUM OF 3" SAND OR PEA GRAVEL AS THEIR BASE.

- R. ALL GRAVITY CONVEYANCE PIPES SHALL ENSURE WATER-TIGHT FITTINGS BY MEANS OF GLUE OR MANUFACTURER'S INSTRUCTIONS.
- S. CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS PRIOR TO EXCAVATION.
- T. ALL VALVES AND DEVICES SHALL BE ANSI/NSF APPROVED, ACCOMPANIED WITH REFERENCE AND MAINTENANCE INSTRUCTIONS AS LISTED IN THE PROVIDED MAINTENANCE CONTRACT.
- V. GREYWATER DISPERSAL CALCULATIONS AND ASSUMPTIONS AS WELL AS BASIN DETAILS FOR BASIN SIZING SHALL BE PROVIDED PRIOR TO INSTALLATION.
- V. ALL NEW AND EXISTING PLANTS AND TREES HAVE BEEN SHOWN TO REPRESENT ROUGH/RELATIVE LOCATIONS AND ARE DIAGRAMMATIC. FOR ACCURATE REPRESENTATION OF PLANTS, REFER TO PLANTING DRAWINGS (WHERE PROVIDED)
- W. PLANTS AND TREES ARE EXISTING UNLESS INDICATED OTHERWISE

**WATER REUSE SCHEDULES**

PIPE SCHEDULE				
SERVICE	PIPE TAG	SIZE	MATERIAL	INSULATION
NON-POTABLE WATER SUPPLY	NPW	2" OR SMALLER	SCHEDULE 40 / 80 PVC: ASTM D1785	PROVIDE INSULATION ON ABOVE GROUND PIPES. 1-1/2" FIBERGLASS, ALL-PURPOSE JACKET. COVER WITH METAL PIPE JACKET WHERE EXPOSED TO WEATHER.
DOMESTIC WATER	CW			FIBERGLASS SHALL BE SPLIT SECTIONAL OR SNAP ON TYPE WITH 0.23 PER INCH MAX. THERMAL CONDUCTIVITY (K-FACTOR) AT 75F MEAN TEMP. PROVIDE VAPOR BARRIER JACKET WITH PRESSURE SENSITIVE CLOSURE SYSTEM. JOHN'S MANSVILLE MICROLOK HP OR APPROVED EQUAL
RAINWATER/ RW OVERFLOW CONVEYANCE	RW OVC	4" OR SMALLER	SCHEDULE 40 PVC: ASTM D1785.	METAL PIPE JACKET SHALL BE 0.016-INCH THICK ALUMINUM WITH FORMED FITTING COVERS, ALUMINUM SNAP STRAPS AND SEALANT  FOR FREEZE PROTECTION, SYSTEM SHALL BE DRAINED.

**APPLICABLE CODES AND REGULATIONS**

1. CALIFORNIA PLUMBING CODE
2. CALIFORNIA BUILDING CODE

TABLE 1101.8 SIZING OF HORIZONTAL RAINWATER PIPING (COMBINED SYSTEM)				
DESIGN RAINFALL RATE = 3 INCHES/HR				
SIZE OF PIPE	DESIGN SLOPE = 1/8-INCH/FOOT		DESIGN SLOPE = 1/4-INCH/FOOT	
	FLOW	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS	FLOW	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS
INCHES	GPM	SQ. FT.	GPM	SQ. FT.
3	34	1,096	48	1,546
4	78	2,506	110	3,533
6	222	7,133	314	10,066
8	478	15,330	677	21,733
10	860	27,600	1,214	38,950
12	1,384	44,400	1,953	62,600
15	2,473	79,333	3,491	112,000

PIPE SIZING	
<b>PRESSURIZED WATER PIPING:</b>	
BASIS OF DESIGN: 2023 CALIFORNIA PLUMBING CODE, APPENDIX A 'RECOMMENDED RULES FOR SIZING THE WATER SUPPLY SYSTEM'. PIPING SIZED ON 3 PSI/100 FT. DROP. VELOCITIES NOT TO EXCEED 8 FT./SEC.	
<b>ROOF DRAIN/STORM DRAIN PIPING SYSTEM:</b>	
BASIS OF DESIGN: 2023 CALIFORNIA PLUMBING CODE, CHAPTER 11, 'STORM DRAINAGE'. STORM DRAIN PIPING SIZED AT 1/8"/FT. SLOPE UNLESS OTHERWISE NOTED AND A RAINFALL RATE OF 1.5"/HR TRADITIONAL SYSTEM, 3"/HR FOR A COMBINED PRIMARY AND OVERFLOW SYSTEM.	
<b>GREYWATER/WASTE/VENT PIPING SYSTEM:</b>	
BASIS OF DESIGN: 2023 CALIFORNIA PLUMBING CODE, CHAPTER 7, 'SANITARY DRAINAGE'. ALL WASTE PIPING SIZED AT 1/4"/FT. SLOPE UNLESS OTHERWISE NOTED.	

RAINWATER TANK SCHEDULE					
TAG NUMBER	LOCATION	TOTAL VOL.	EACH TANK		MAKE, MODEL
		(GROSS GAL.)	QTY	DIMENSIONS	
TANK-1	CSD SHED	5,000	(1) @ 5,000	8' H. x 10'-9" DIA.	BUSHMAN POLY 5050 OR APPROVED EQUAL

PUMP SCHEDULE							
TAG NUMBER	DESCRIPTION	LOCATION	PERFORMANCE			MAKE, MODEL	QTY
			MAX PUMP HEAD (FT)	POWER (TOTAL HP)	VOLT/ PHASE		
PUMP-1	SUBMERSIBLE RW PUMP	CSD SHED	220	1/2	120/1	RAIN BROTHERS. TRADITIONAL SPRINGER SERIES CISTERN PUMP WITH FLOATING INTAKE VALVE	1

EQUIPMENT SCHEDULE			
TAG NUMBER	LOCATION	DESCRIPTION	QTY
GT-1	GUTTER	RECTANGULAR STEEL GUTTER. REFER TO PLANS FOR LENGTH, 4-INCH DIA.	SEE PLANS
CO-1	GRAVITY PIPING SYSTEMS	2-WAY CLEAN OUT COMBO TEE WITH THREAD ADAPTER AND PLUG SIMILAR TO: 2", ABS, CANPLAS	1
DS-1	ALL DOWNSPOUTS CONNECTED TO TANK SYSTEMS	DOWNSPOUT FILTER: COMMERCIAL ZINCALUME STEEL RAINHARVEST 4" LEAF EATER ADVANCED DOWNSPOUT FILTER OR APPROVED EQUAL.	2
		TANK-1: RAINHARVESTING FIRST FLUSH ASSEMBLY DIVERTER WITH ACUATOR RELIEF VALVE) OR APPROVED EQUAL	1
MV-1	(1) PER TANK SYSTEM	MAKE UP WATER VALVE: 3/4" RAINAID OR APPROVED EQUAL	1
BF-1	CSD SHED	BACKFLOW PREVENTER:3/4"ZURN 375-XL REDUCED PRESSURE BACKFLOW ASSEMBLY OR APPROVED EQUAL	1



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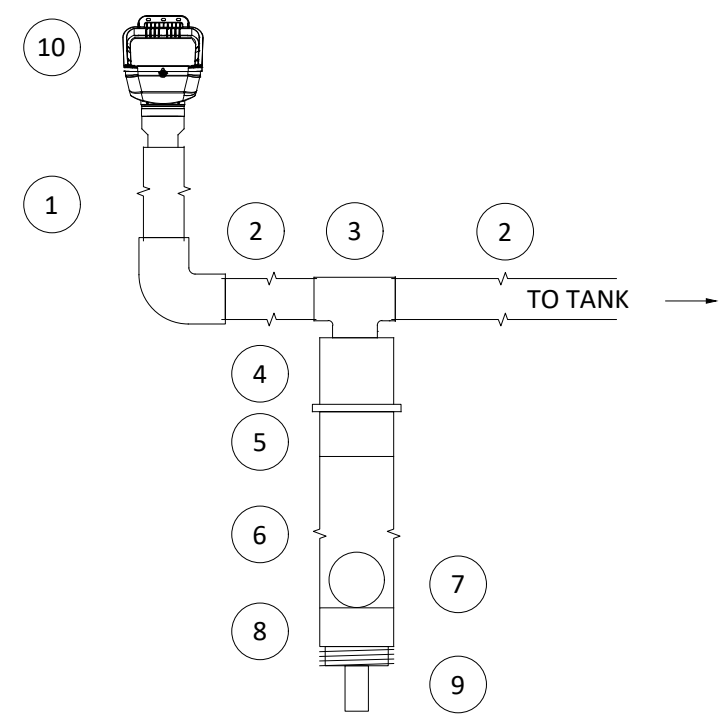
**WATER REUSE  
EQUIPMENT  
SCHEDULES**

SHEET NO.:

**W6.1**

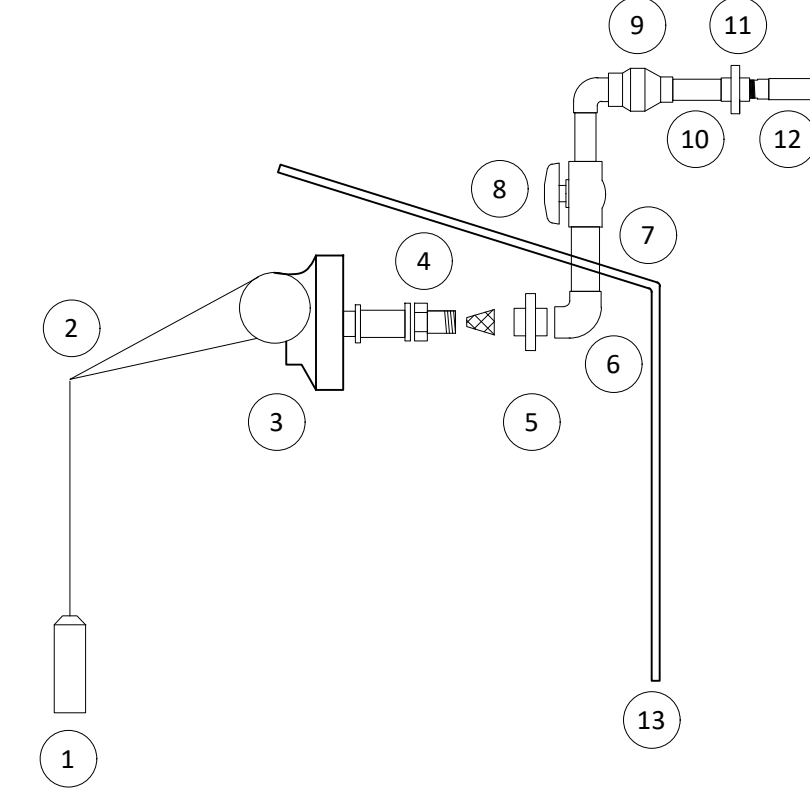
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- DETAIL NOTES:**
- 1) PVC LEADER PIPE
  - 2) PVC PIPE
  - 3) PVC TEE
  - 4) BUSHING
  - 5) PVC COUPLER
  - 6) PVC W/ STOPPER BALL DIAMETER >2", <2.75"
  - 7) PVC FTA
  - 8) BUSHING MPT X FPT
  - 9) RAINAID ADVANCED RELIEF VALVE
  - 10) LEAF GUARD (AT DOWNSPOUT LOCATION)

- GENERAL NOTES:**
- A. MATERIALS FASTENED WITH TWO WALL STRAPS.
  - B. ASSEMBLY IS OF TYP. FIRST FLUSH UNIT.
  - C. ALTERNATE: USE APPROVED MONOLITHIC ASSEMBLY.
  - D. ALTERNATE: USE APPROVED MOZZIE STOPPA OVERFLOW SCREEN.



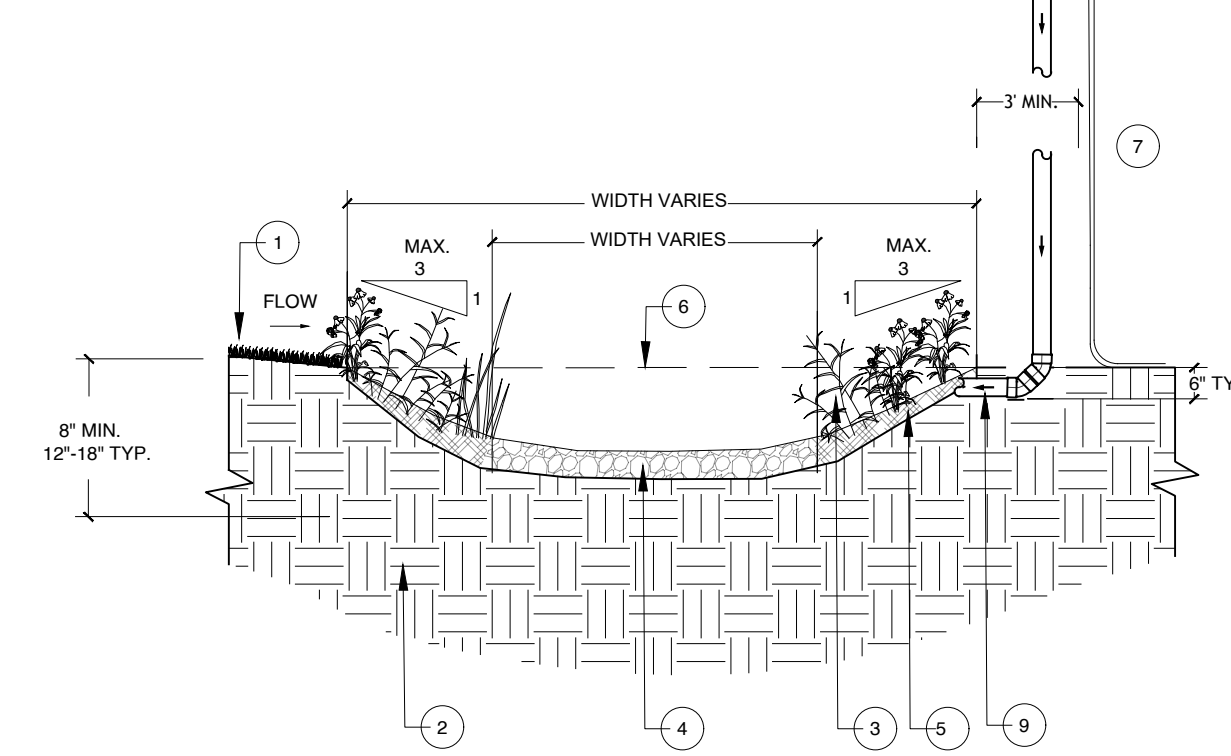
- 1) ACTIVATOR FLOAT - ADJUST LINE LENGTH FOR DESIRED FILL HEIGHT
- 2) SWING ARM ACTIVATOR
- 3) MAKE-UP WATER FILL OPENING
- 4) SCREEN FILTER
- 5) 3/4" PVC SCH. 40 UNION FPT
- 6) 3/8" PVC SCH. 40 90 ELBOW MPT X FPS
- 7) 3/8" PVC SCH. 40 PIPE
- 8) 3/8" PVC SCH. 40 BALL VALVE FPS INSTALL W/ BALL VALVE HOUSING TOUCHING CISTERN HANDLE TO FACE DOWNHILL SLOPE OF CISTERN ROOF.
- 9) PVC SCH. 40 SPRING CHECK VALVE FPT
- 10) 1/2" X 2" LONG PVC SCH. 80 NIPPLE MPT
- 11) PVC SCH. 40 UNION FPT
- 12) PVC SCH. 40 MALE THREAD ADAPTER
- 13) CISTERN WALL

**GENERAL NOTES:**

- A. BIO-SWALE ALIGNMENT MAY BE STRAIGHT OR MEANDERING, DEPENDING ON AVAILABLE SPACE.
- B. TREES AND SHRUBS SHOULD BE LOCATED AN APPROPRIATE DISTANCE FROM THE SWALE BASED ON SPECIES' TOLERANCE OF SATURATED SOIL CONDITIONS.
- C. USE OF GRAVEL / RIVER ROCK / MULCH AND SWALE DEPTHS TO BE VERIFIED ON-SITE.
- D. SPOT AMEND PLANTS WITH A MIX OF COMPOST AND NATIVE SOIL.
- E. MAXIMUM 3:1 SLOPE

**DETAIL NOTES:**

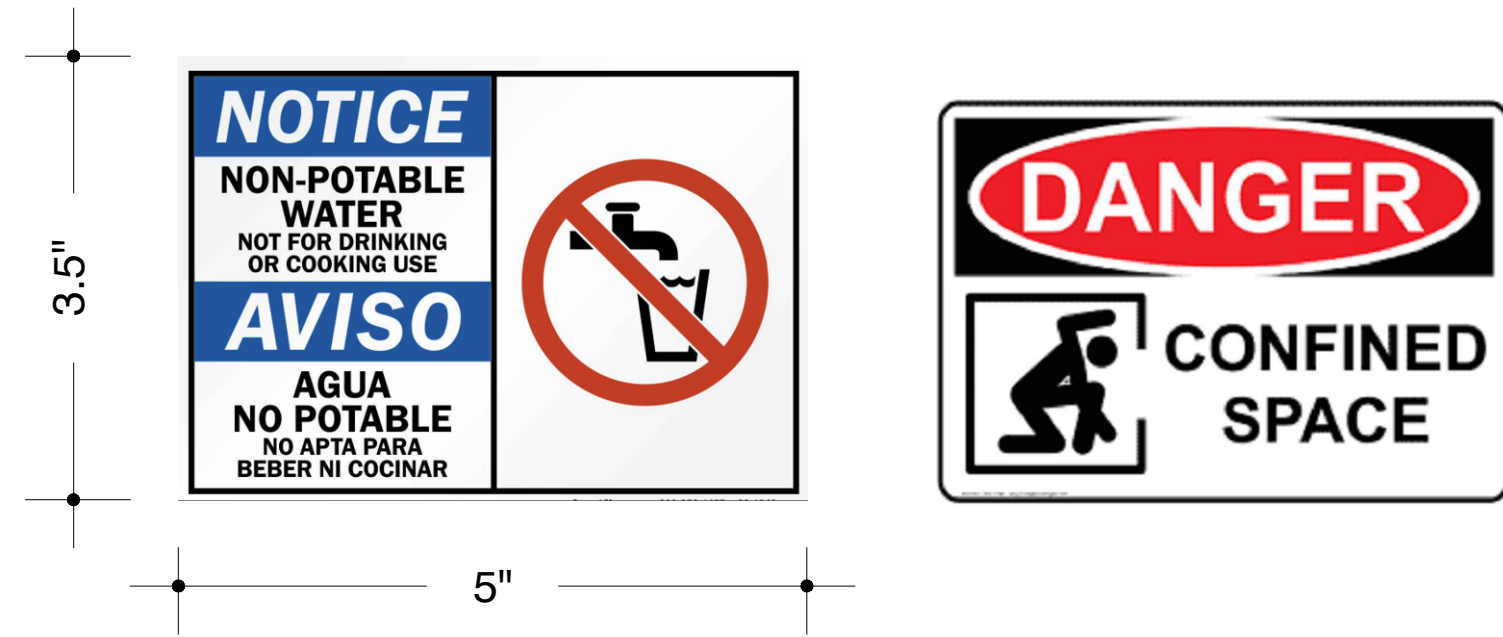
- 1) (E) GRADE - ADJACENT SURFACES MAY VARY
- 2) UN-COMPACTED SUB GRADE
- 3) NATIVE SWALE BASIN PLANTS - REFERENCE PLANTING PLAN
- 4) GRAVEL / RIVER ROCK, 3-4" DEPTH (MAXIMUM OF 6")
- 5) MULCH, 3-4" DEPTH (MAXIMUM OF 6")
- 6) FILL LINE
- 7) RAINWATER CISTERN SIDE WALL
- 8) RAINWATER OVERFLOW CONVEYANCE PIPE
- 9) RAINWATER OVERFLOW INTO BIO-SWALE



**1** FIRST FLUSH ASSEMBLY DETAIL (TYP.)  
(N.T.S)

**2** RAINWATER / MUNICIPAL MAKEUP WATER ASSEMBLY  
(N.T.S)

**3** BIO-SWALE + RAINWATER OVERFLOW DISCHARGE (TYP.)  
(N.T.S)

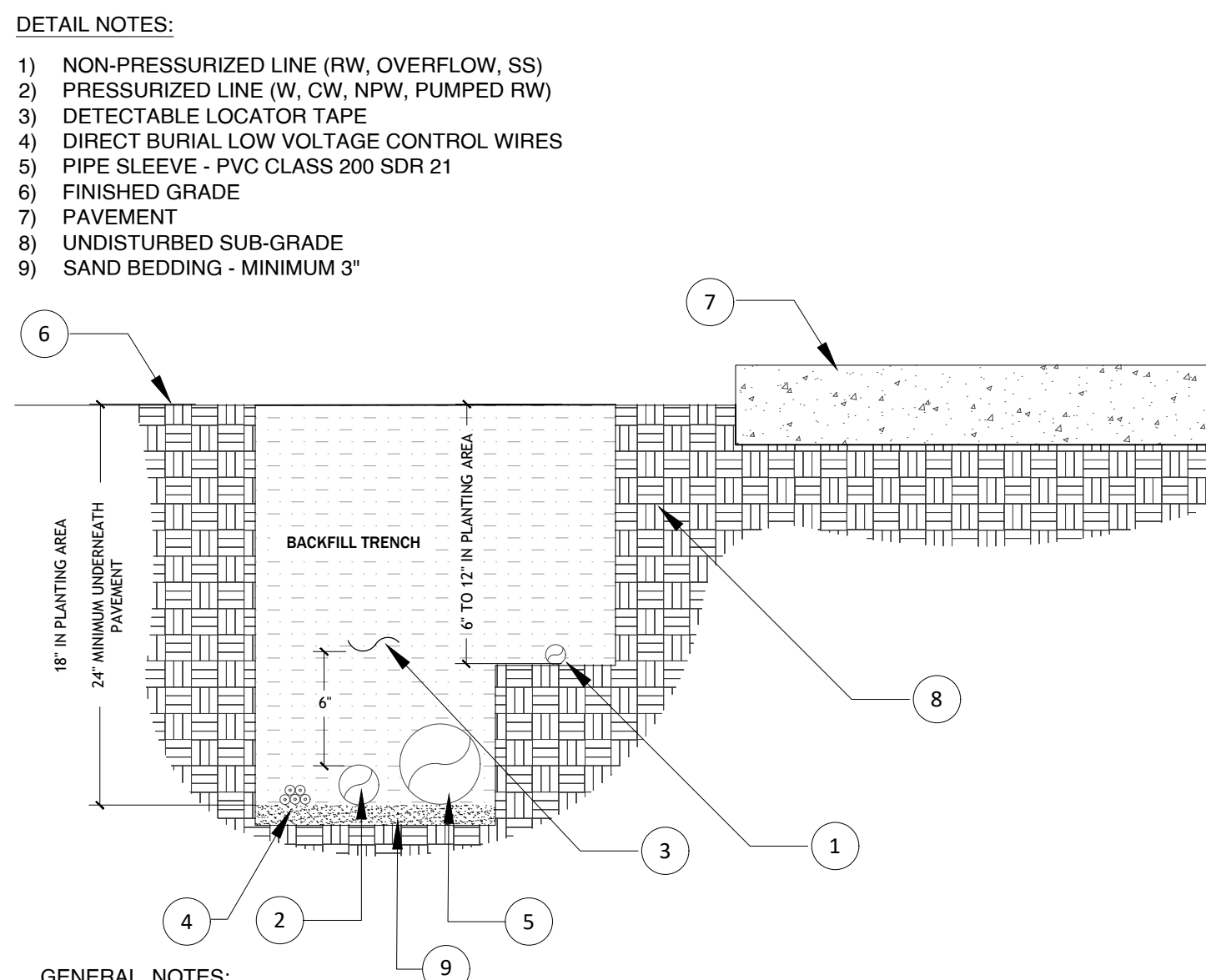


- GENERAL NOTES:**
- A. RAINWATER TANKS SHALL HAVE APPROPRIATE SIGNAGE NOTING "NON-POTABLE WATER" AND "DANGER CONFINED SPACE" ALL IN ACCORDANCE WITH CALIFORNIA PLUMBING CODE CHAPTER 16.
  - B. SIGNAGE SHALL BE UV, CHEMICAL, ABRASION AND FADE RESISTANT.

- GENERAL NOTES:**
- A. RAINWATER CONVEYANCE LINES SHALL HAVE APPROPRIATE SIGNAGE NOTING "NON-POTABLE WATER" ALL IN ACCORDANCE WITH CALIFORNIA PLUMBING CODE CHAPTER 16.
  - B. ADHESIVE PIPE MARKERS SHALL BE UV, CHEMICAL, ABRASION AND FADE RESISTANT.

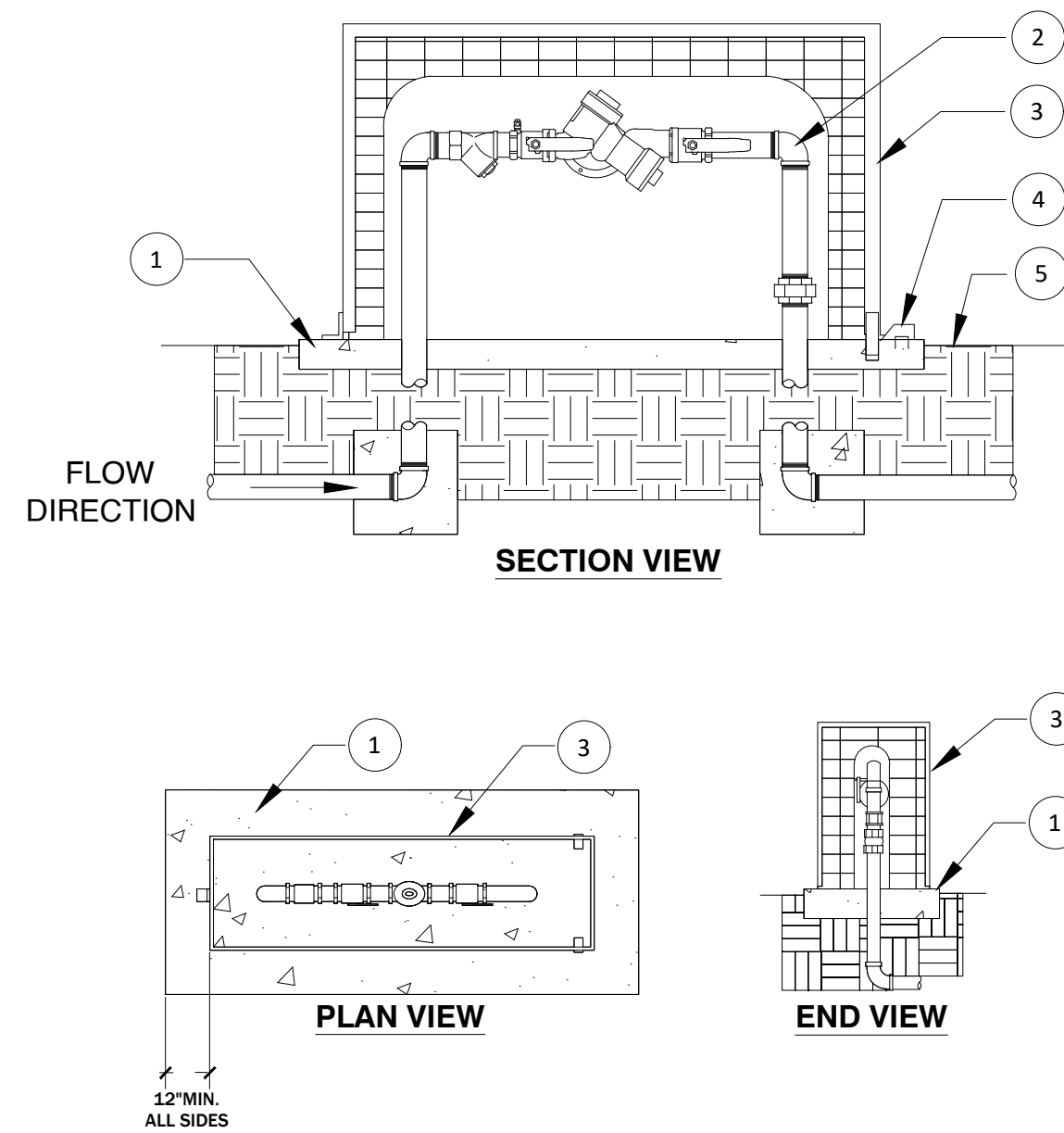
**4** NON-POTABLE SIGNAGE: SYSTEM LOCATION AND TANKS (TYP.)  
(N.T.S)

**5** NON-POTABLE SIGNAGE - PIPE MARKER (TYP.)  
(N.T.S)



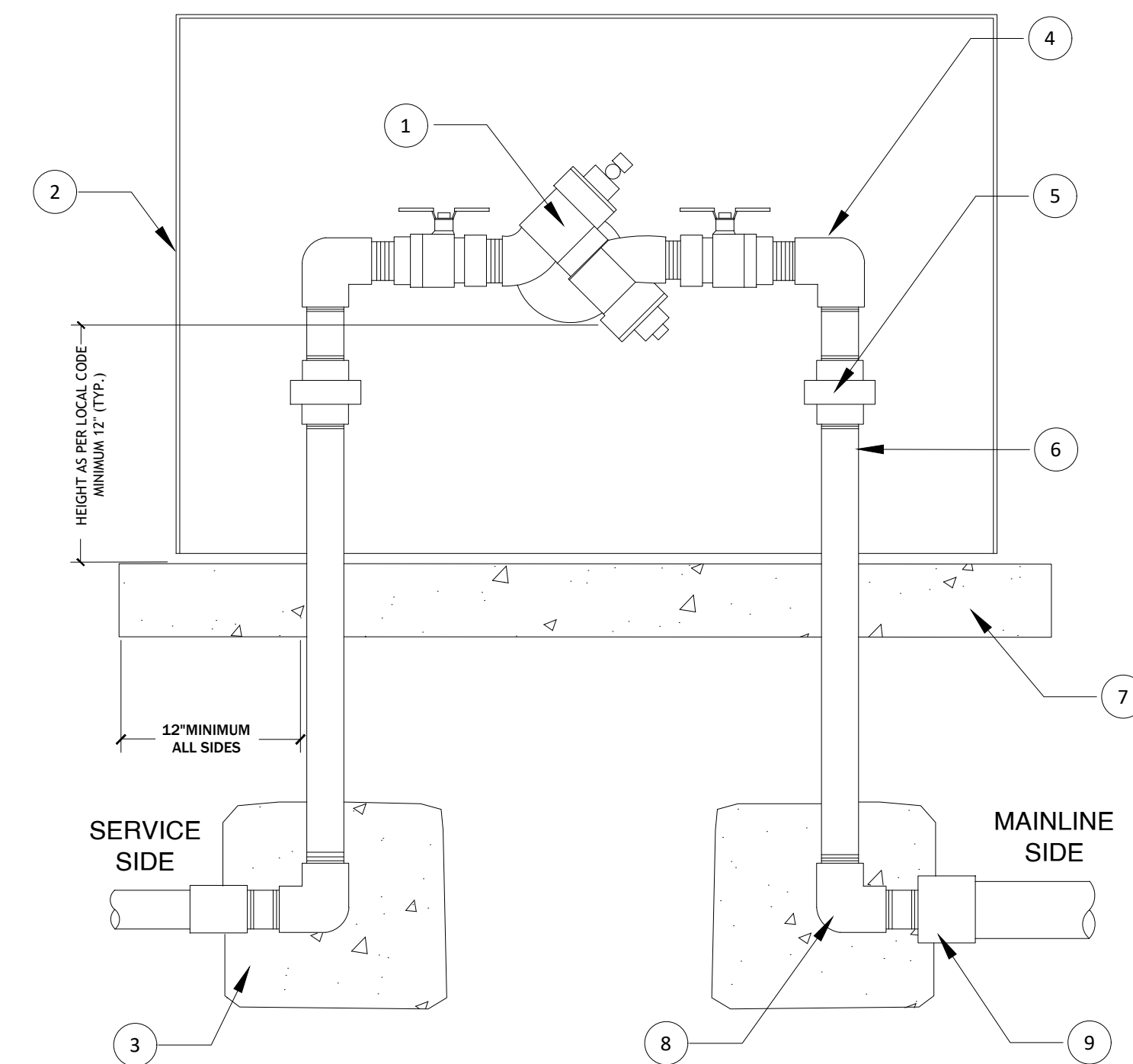
- DETAIL NOTES:**
- 1) NON-PRESSURIZED LINE (RW, OVERFLOW, SS)
  - 2) PRESSURIZED LINE (W, CW, NPW, PUMPED RW)
  - 3) DETECTABLE LOCATOR TAPE
  - 4) DIRECT BURIAL LOW VOLTAGE CONTROL WIRES
  - 5) PIPE SLEEVE - PVC CLASS 200 SDR 21
  - 6) FINISHED GRADE
  - 7) PAVEMENT
  - 8) UNDISTURBED SUB-GRADE
  - 9) SAND BEDDING - MINIMUM 3"
- GENERAL NOTES:**
- A. SEE PIPE SCHEDULE FOR SIZES AND TYPES.
  - B. DIRECT BURIAL CONTROL WIRES SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT IF REQUIRED.
  - C. 2-WIRE IRRIGATION WIRE SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT.
  - D. DETECTABLE LOCATOR TAPE SHALL BE LOCATED SIX INCHES (6") ABOVE THE ENTIRE MAINLINE RUN.
  - E. FOR UTILITY TRENCHES, COMPACT THE INITIAL BACKFILL USING NATIVE SOIL, TO A RELATIVE COMPACTION OF 95% FOR UNPAVED AREAS, COMPACT NATIVE SOIL MATERIAL TO A RELATIVE COMPACTION OF 85%.
  - F. BACKFILL TRENCH, ADJACENT TO WALKWAYS IS TO BE WITHIN 4" BELOW FINISH GRADE OF WALKING SURFACE.

**6** TRENCHING (TYP.)  
(N.T.S)



- DETAIL NOTES:**
- 1) 4" THICK CONCRETE FOOTING
  - 1" ABOVE FINISHED GRADE
  - 2) BACK FLOW PREVENTION DEVICE
  - 3) BACK FLOW CAGE
  - 4) LOCK BOX
  - 5) FINISHED GRADE
- GENERAL NOTES:**
- A. INSTALL BACK FLOW ENCLOSURE PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.
  - B. SEE BACK FLOW PREVENTION DEVICE DETAIL FOR REFERENCE.
  - C. LOCK BOX SHALL BE LOCATED ABOVE CONCRETE FOOTING.
  - D. LOCK TO BE PROVIDED BY CONTRACTOR OR AS APPROVED BY OWNER.

**7** BACKFLOW PREVENTER ENCLOSURE  
(N.T.S)



- DETAIL NOTES:**
- 1) REDUCED PRESSURE BACK FLOW DEVICE AS SPECIFIED
  - BACK FLOW ENCLOSURE AS SPECIFIED
  - CONCRETE THRUST BLOCKS
  - GALVANIZED NIPPLES AND ELL AS REQUIRED
  - GALVANIZED RISERS AT EACH SIDE
  - GALVANIZED UNIONS
  - 4" THICK MINIMUM CONCRETE PAD
  - GALVANIZED ELL AND NIPPLE, TYPICAL
  - PVC COUPLER OR REDUCER AS REQUIRED, TYPICAL
- GENERAL NOTES:**
- A. PROVIDE REDUCED PRESSURE BACK FLOW PREVENTER OF ANY EXISTING WELL WATER CONNECTION TO NEW OUTLET / FIXTURE.
  - B. IN ACCORDANCE WITH CALIFORNIA PLUMBING CODE 2022 CHAPTER 15 AND 16
  - C. UNIONS TO BE PLACED AS NEEDED (EASE OF MAINTENANCE + REPLACEMENT)
  - D. REDUCED PRESSURE BACK FLOW PREVENTER TO BE TESTED BY QUALIFIED TECHNICIAN.

**8** REDUCED PRESSURE BACKFLOW DEVICE  
(N.T.S)



WATERSHED PROGRESSIVE  
WWW.WATERSHEDPROGRESSIVE.COM  
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Twain Harte Community Service District  
22912 Vantage Point Dr, Twain Harte, CA 95383

REVISION	DATE
1 80% SUBMITTAL	06.06.24
2 100% SUBMITTAL	06.26.24
3 100% SUBMITTAL v2	07.05.24
4 100% SUBMITTAL v3	08.09.24
5	
6	

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DRAWN BY: MS  
REVIEW BY: NS

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SHEET NO.:

W6.2

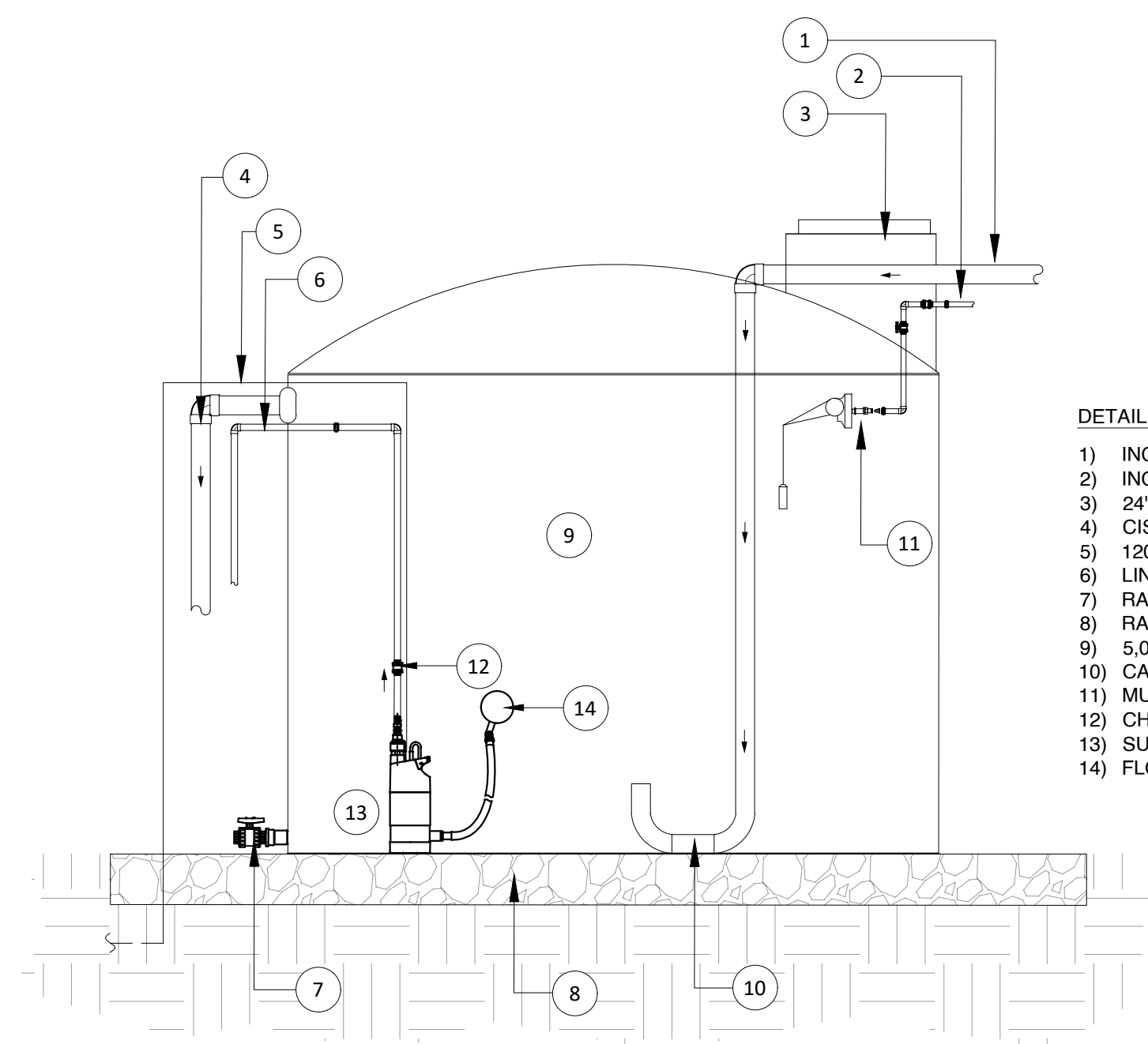
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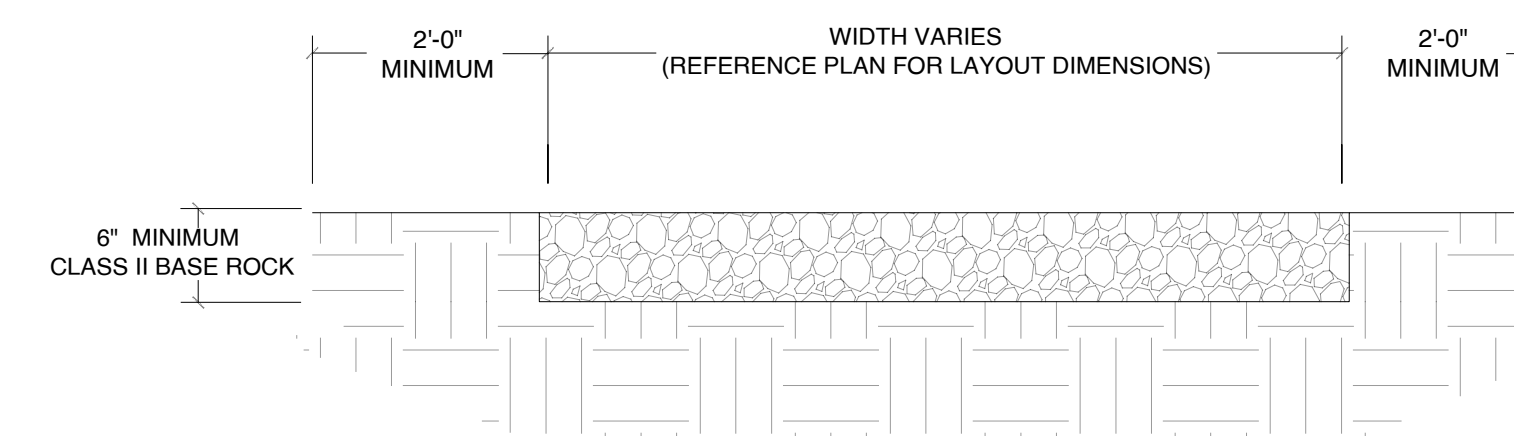


DETAIL NOTES:

- 1) INCOMING RAINWATER FROM F.F. ASSEMBLY
- 2) INCOMING MAKEUP MUNICIPAL WATER
- 3) 24" MANWAY ACCESS LID / VENTING
- 4) CISTERN OVERFLOW W/ MOZZIE STOPPA ASSEMBLY TO BIO-SWALE.
- 5) 120-VAC PUMP CABLE TO OUTDOOR ELECTRICAL OUTLET
- 6) LINE TO IRRIGATION VALVE(S)
- 7) RAINWATER CISTERN MANIFOLD
- 8) RAINWATER CISTERN GRAVEL PAD - CLASS II BASE ROCK
- 9) 5,000-GAL. RAINWATER CISTERN
- 10) CALMING INLET
- 11) MUNICIPAL MAKEUP WATER ASSEMBLY
- 12) CHECK VALVE
- 13) SUBMERSIBLE PUMP
- 14) FLOATING INTAKE VALVE W/ SEDIMENT SCREEN

GENERAL NOTES:

- A. ENSURE SUB-GRADE IS WELL COMPACTED AND LEVEL.
- B. ENSURE CLASS II BASE ROCK - COMPACTED 95%
- C. REFERENCE GRADING PLAN FOR PAD DIMENSIONS & LAYOUT.
- D. RAINWATER CISTERN PAD LAYOUT AND DIMENSIONS TO BE STAKED OUT AND VERIFIED PRIOR TO GRAVEL BASE FILL & COMPACTION.
- E. REFERENCE TANK MANUFACTURER PAD SPECIFICATIONS AS NEEDED.



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9 RAINWATER POLY TANK AT CSD SHED  
 (N.T.S)

10 RAINWATER POLY TANK GRAVEL PAD  
 (N.T.S)