



NOT TO SCALE

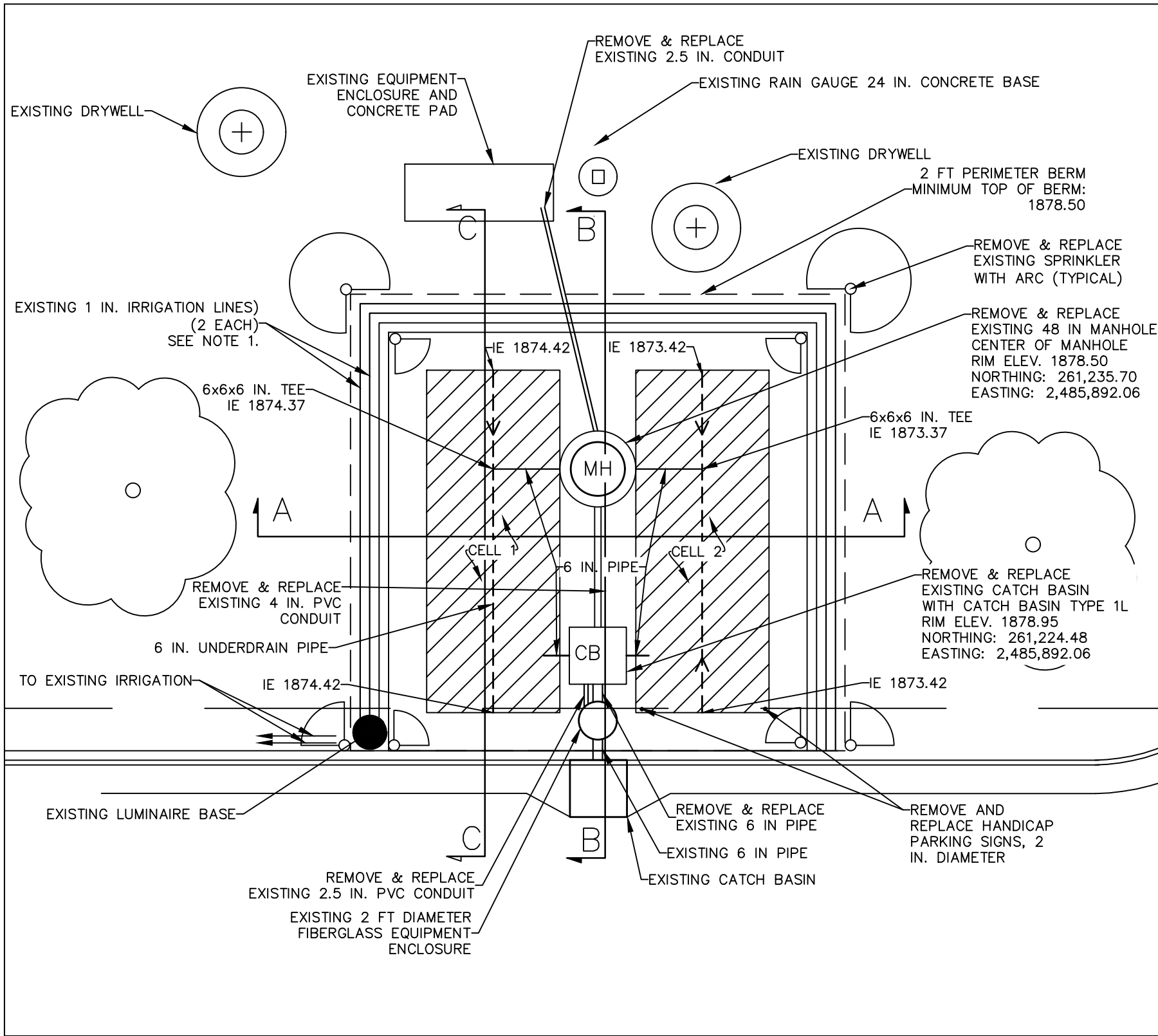


EVERGREEN STORMH2O, PO BOX
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99228
www.evergreenstormh2o.com

APPROVED:
STORMWATER ENGINEER

Bioretention Soil Media Study: Development of Non-Vegetated BMPs

SHEET



- NOTES:
1. REMOVE EXISTING IRRIGATION LINES AND SPRINKLERS BEFORE CONSTRUCTION. AFTER CONSTRUCTION REPLACE IRRIGATION LINE AND SPRINKLER HEADS FOR WATERING OUTSIDE THE POND AREA.
 2. UNLESS OTHERWISE NOTED, EXISTING ITEMS TO REMAIN IN PLACE.

Item Number	Item Description	Item Units	Item Quantity
1	MOBILIZATION	LS	
2	EXCAVATION INCL. HAUL	CY	38
3	PERFORATED PVC UNDERDRAIN PIPE, 6 IN.	LF	20
4	SOLID WALL PVC STORM SEWER PIPE, 6"	LF	20
5	6X6X6 SEWER TEE, SOLVENT WELD	EA	6
6	6 IN. CAP S PVC SCH 40	EA	4
7	11.5 DEGREE COUPLINGS FOR 6 IN. SDR PIPE	EA	2
8	4 IN. PVC CONDUIT, SCHEDULE 40	LF	10
9	FLEXIBLE PVC PIPE, COUPLING AND FITTINGS, 2.5 IN.	LF	20
10	1-1/4 IN. PVC DISCHARGE PIPE	LF	20
11	1-1/2 IN. FLEXIBLE PVC (SPRINKLER PIPE)	LF	20
12	MANHOLE TYPE 1 - 48"	EA	1
13	2 FT RISER X FT FOR 48 IN MANHOLE TYPE 1	EA	1
14	CUSTOM CORE HOLES IN MANHOLE BY VENDOR	EA	5
15	PRECAST CATCH BASIN, TYPE 1L	EA	1
16	REDUCING SLAB FOR CATCH BASIN TYPE 1L	EA	1
17	RECTANGULAR SOLID METAL COVER AND REVERSIBLE FRAME FOR CATCH BASIN TYPE 1L	EA	1
18	SEEDING, FERTILIZING, AND MULCHING	AC	0.01
19	GRAVEL BACKFILL FOR DRAINS	CY	4
20	CHOKE STONE #8 OR #89 WASHED (PEA GRAVEL)	CY	8
21	3/4 IN. CRUSHED BASALT CHIPS (ROCK MULCH)	CY	4
22	HIGH PERFORMANCE BIORETENTION MIX	CY	18
23	POLISHING LAYER	CY	12
24	60:40 BIORETENTION MIX	CY	18
25	30 ML HDPE GEOMEMBRANE LINER	SF	1755
26	SUMP PUMP	EA	2
27	PIPE SUPPORTS	EA	4
28	1 IN IRRIGATION PIPE AND FITTINGS	LF	140
29	SPRINKLER	EA	4
30	6 IN. THEL-MAR WEIRS	EA	3
31	EROSION AND SEDIMENT CONTROL	LS	1

DRAWN BY	LEDEBOER	MAY 2024
DESIGNED BY	NAVICKIS-BRASCH	MAY 2024
CHECKED BY	MAURER	MAY 2024



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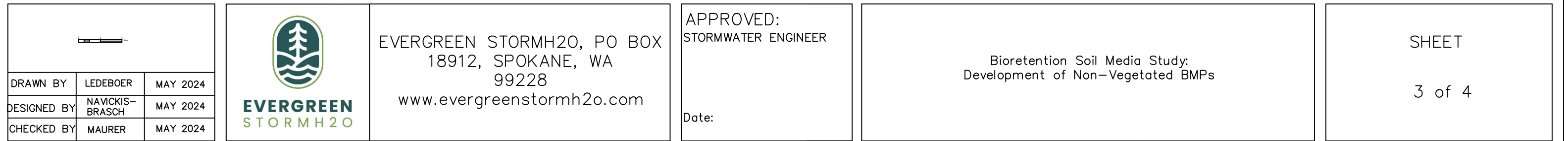
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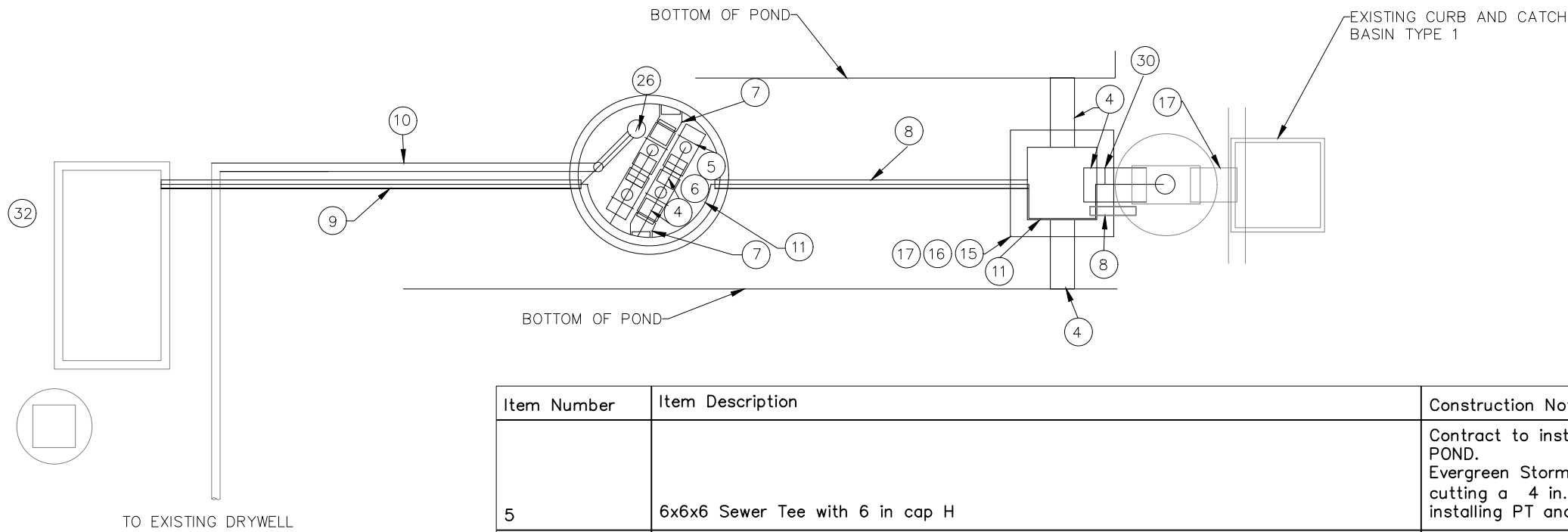
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1. COMPACT THE BSM TO A RELATIVE COMPACTION OF 85% OF MODIFIED MAXIMUM DRY DENSITY (ASTM D1557-12). COMPACTION CAN BE ACHIEVED BY BOOT PACKING (SIMPLY WALKING OVER ALL AREAS OF EACH LIFT) AND THEN APPLY 0.2 INCHES OF WATER PER 1 INCH OF BSM DEPTH. WATER FOR SETTLING SHOULD BE APPLIED BY SPRAYING OR SPRINKLING.
2. LOCATE GEOMEMBRANE LINE ALONG THE ENTIRE POND SIDE SLOPES AND BOTTOM AND OVER THE TOP OF THE BERM. SEAL STRUCTURE AND PIPE PENETRATIONS AND SEAMS PER MANUFACTURERS RECOMMENDATIONS.
3. 6 IN UNDERDRAIN PIPE WITH SLOTS CUT PERPENDICULAR TO THE LONG AXIS OF THE PIPE, MEASURE 0.04 TO 0.069 INCHES BY 1 INCH, AND BE SPACED 0.25 INCHES APART (SPACED LONGITUDINALLY). SLOTS SHOULD BE ARRANGED IN TWO ROWS SPACED ON 45-DEGREE CENTERS AND COVER ONE-HALF THE CIRCUMFERENCE OF THE PIPE. PIPE SHALL BE INSTALLED WITH SLOTS ORIENTED ON TOP OF THE PIPE.
4. INSTALL 6 IN REDUCING SLAB AND METAL COVER ON TOP OF CATCH BASIN TYPE L. INSTALL PIPE THROUGH KNOCKOUTS AT THE ELEVATIONS SHOWN. PROVIDE A 1.5 IN. MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPES ARE INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION SECTION 9-04.3.
5. REMOVE EXISTING 48 IN. TOP SLAB AND HALLIDAY ACCESS DOOR AND REINSTALL AFTER NEW MANHOLE IS INSTALLED. REMOVE EXISTING MANHOLE AND REPLACE WITH MANHOLE 48 IN WITH 5 FT BASE AND 1 FT RISER.





Item Number	Item Description	Construction Notes
5	6x6x6 Sewer Tee with 6 in cap H	Contract to install Tee to underdrain and 6 IN. DISCHARGE TO MANHOLE FROM EACH POND. Evergreen StormH2O staff will install Tees inside manhole after construction including cutting a 4 in. x 5 in. opening into top of Tee (PT access and maintenance) and installing PT and weirs in Tees.
6	6 in cap H; for SDR35 pipe	Evergreen StormH2O staff will install to bottom of each Tee in the manhole after construction.
7	11.5 degree couplings for 6 in. SDR pipe	Replace existing coupling with new coupling and connect to new 6" effluent discharge pipe from each pond.
8	4 in. PVC conduit	Remove existing 4 in. conduit and replace with 4 in. conduit at the elevations shown on page 3. fter construction, Evergreen StormH2O to locate sample tube and PT cord inside of pipe to item 15.
9	Flexible PVC Pipe, Coupling And Fittings, 2.5 in.	Replace existing 2-1/2 in. pipe with new 2-1/2 in. pipe. Pipe will connect to manhole and existing fiberglass enclosure. After construction, Evergreen StormH2O to locate sample tube, PT cord, and power cord for the sump pump, inside of pipe from the manhole to the fiberglass enclosure.
10	1-1/4 in. PVC discharge pipe	Replace existing 2 in pipe from manhole to elbow. This pipe discharges effluent from the sump pump to the existing drywell.
11	1-1/2 in. flexible PVC (sprinkler pipe)	Evergreen StormH2O to install after construction and locate sample tube and PT cord inside flexible tubing to existing pipe supports along inside of manhole and catch basin.
26	Install Sump pumps with float valve	Evergreen StormH2O to replace existing sump pumps with new sump pumps. Both will be located in bottom of manhole and connected to power at the equipment enclosure. Power connections will be routed through the 2-1/2 in. conduit. Discharge from pumps will be routed to existing 2 in pipe to the existing drywell shown.
27	Pipe supports (construction from Hayden)	Evergreen StormH2O will construct 4 pipe supports using channels and install into base of existing manhole. Secure 2 supports to each effluent discharge sample/flow monitoring collection setup using 6" strut clamps (2 per side)
30	Install 6 in. Thel-Mar Weirs	Evergreen StormH2O staff will install weirs after construction.
32	Install/connect monitoring equipment	Evergreen StormH2O will install trickle charger to batteries to ISCO equipment and data logger inside equipment enclosure. Installation will occur after construction.

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