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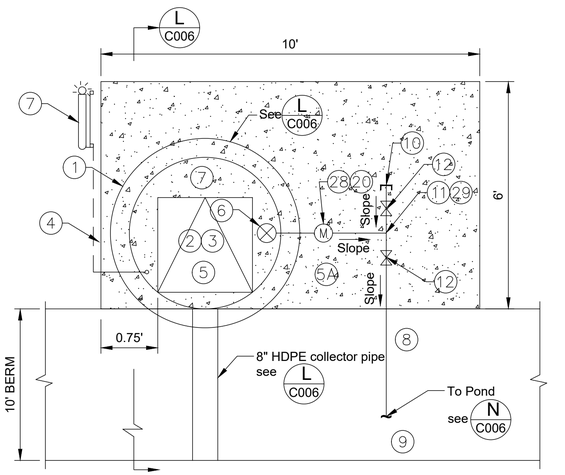
Docket Number: 09-AFC-05C

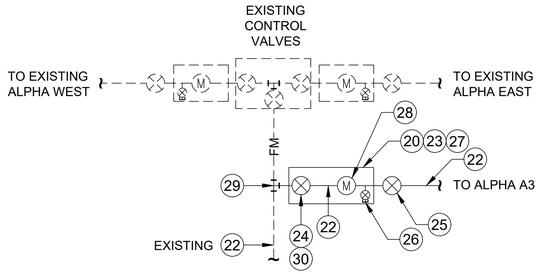
Mojave Solar New Ponds Project- Segment 002

Additional submitted attachment is included below.



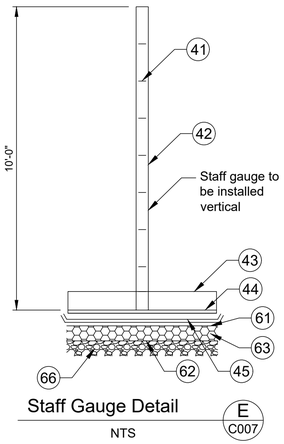
LCRS Collection Manhole and Concrete Pad Detail — M C007

NTS



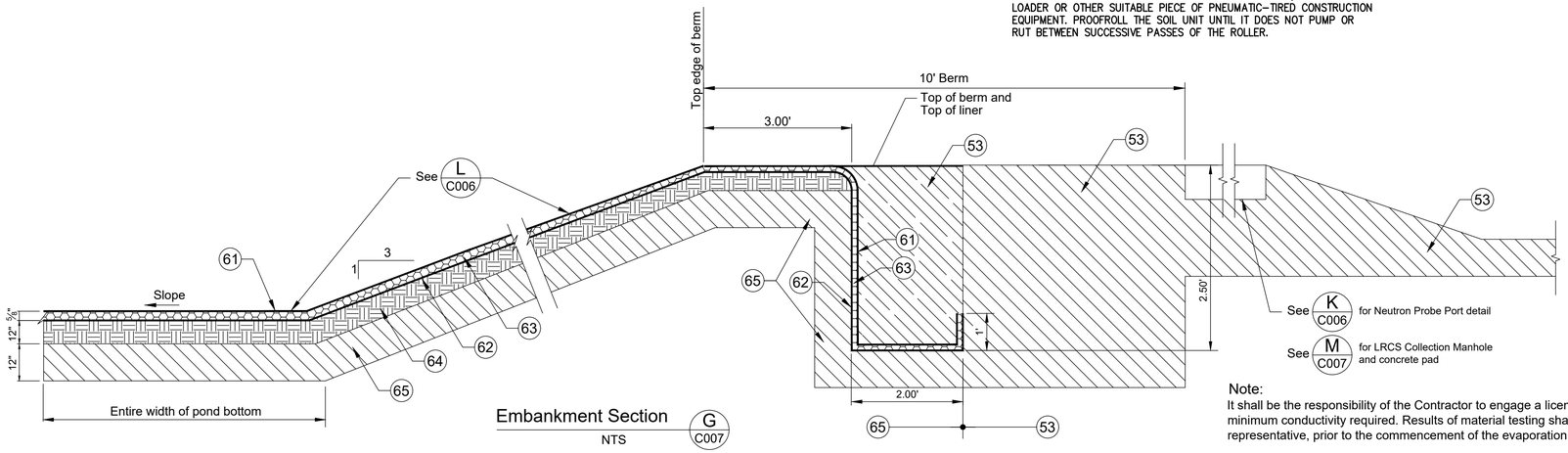
Pond Flow Control Valves Detail — R C007

NTS



Staff Gauge Detail — E C007

NTS



Embankment Section — G C007

NTS

HDPE Liner Specification - Conductive Liner

Product Specifications *These product specifications meet or exceed GRI GM13.*

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE 40 mil	MINIMUM AVERAGE VALUE 60 mil
Thickness, (minimum average) mil (mm) Lowest individual reading (-10%)	ASTM D 5199	every roll	40 (1.00) 36 (0.91)	60 (1.50) 54 (1.40)
Density, g/cm³	ASTM D 1505	200,000 lb	0.94	0.94
Tensile Properties (each direction) Strength at Break, lb/in-width (N/mm) Strength at Yield, lb/in-width (N/mm) Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 2.0 in (51 mm) G.L. 1.3 in (33 mm)	20,000 lb	 152 (26) 84 (14) 700 13	 243 (42) 132 (23) 700 13
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	28 (124)	42 (186)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	85 (378)	125 (556)
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note(1)	Note(1)
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	1,000	1,000
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140	>140

Note 1: 9 of 10 views shall be Category 1 or 2.

CONSTRUCTION NOTES

(61) INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) UPPER LINER. UPPER LINER TO BE 60 MIL, TEXTURED UPPER SURFACE AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

(62) INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) LOWER LINER. LOWER LINER TO BE 40 MIL AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

(63) INSTALL AN INTERSTITIAL LEAK COLLECTION GEONET MATERIAL BETWEEN THE UPPER AND LOWER LINERS. THE GEONET WILL BE A MINIMUM OF 200 MIL WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AT A SLOPE OF 1% UNDER A HEAD OF 1 FOOT. GEONET SHALL BE HYPERNET AS MANUFACTURED BY GSE OR EQUIVALENT. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

(64) INSTALL A BASE LAYER CONSISTING OF 12–INCHES OF ONSITE SOIL BELOW THE LOWER LINER. THE BASE LAYER WILL BE CONSTRUCTED TO CONTAIN NO PARTICLES LARGER THAN ONE INCH. BASE LAYER SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY PER ASTM D1557. PROOFROLL THE BASE TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT MATERIAL AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND FILL AS NOTED HERE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

AFTER ROUGH GRADE HAS BEEN ACHIEVED, AND PRIOR TO PLACEMENT OF THE BASE MATERIAL, PROOFROLL AND PREPARE THE EXPOSED SUBGRADE BY DISCING AND MOISTURE CONDITIONING SOIL TO OPTIMUM MOISTURE CONTENT. PERFORM PROOFROLLING TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT SUBGRADE AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACEING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND AS NOTED HERE. REMOVE CALICHE OR CEMENTED LAYERS TO 8" BELOW SUBGRADE SURFACE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNIT UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

(65)

CONSTRUCTION NOTES

(20) UPSTREAM AND DOWNSTREAM CLEAR DISTANCE TO BE AS RECOMMENDED BY THE METER MANUFACTURER OR AS SHOWN ON C552.

(21) VALVE AREA (ROAD TO POND) TO BE COVERED WITH 6" OF 3/4" ROCK ON TOP OF COMPACTED SOIL AT GRADE.

(22) FORCE MAIN (FM) BY OTHERS TO BE 4" HDPE.

(22A) DISTRIBUTION PIPE TO BE 4" DIP. ALL FITTINGS TO BE DIP. ALL PIPES TO BE RESTRAINED.

(23) WATER METER BOXES TO BE PLACED WITH TOP OF LID 2" ABOVE GRADE. EXTEND METER BOX TO TOP OF PIPE.

(24) INSTALL 4" DIAMETER ISOLATION VALVE, RESILIENT, SEAT MJ X MJ, WITH SQUARE NUT OPERATOR AND SLIDING ADJUSTABLE CAST IRON VALVE BOX.

(25) INSTALL 4" DIAMETER MANUAL VALVE (TO CONTROL FLOW TO EACH POND), RESILIENT SEAT, MJ X MJ, WITH SQUARE NUT OPERATOR AND SLIDING ADJUSTABLE CAST IRON VALVE BOX.

(26) INSTALL 4"X 3/4" TEE AND EXTEND 3/4" SCHEDULE 80 PVC TO WITHIN 6" OF INSIDE OF TOP OF METER BOX. INSTALL 3/4" GATE VALVE, THREADED, WITH 3/4" PLUG (TEST PORT VALVE) ON END OF PIPE.

(27) INSTALL CAST IRON OR CONCRETE WATER METER BOX AND LID. SIZE TO PROVIDE CLEARANCE FOR WATER METER AND TEST PORT VALVE.

(28) INSTALL 2" FL X FL WATER METER. WATER METER TO BE SIZED FOR OPERATING RANGE OF 0.5 TO 160 GPM WITH ACCURACY OF 98.5% TO 101.5% AND LOSS NOT TO EXCEED 4.3 PSI AT 160 GPM IT WILL ALSO HAVE THE CAPACITY FOR MAXIMUM INTERMITTENT FLOWS OF 200 GPM. METER SHALL BE CENSUS OMNI C2 OR EQUAL.

(29) INSTALL FITTINGS AS NOTED OR NEEDED (TYPICAL).

(30) VAULT TO BE CONSTRUCTED AROUND VALVES.

(41) 6" WIDE FIBERGLASS STAFF GAUGE SECURED TO BOX BEAM. AS MANUFACTURED BY VPC OR APPROVED EQUAL. CONTRACTOR TO SUBMIT GAUGE FOR APPROVAL. MARKINGS TO BE AT 0.1 FEET INTERVALS.

(42) 6" X 6" X 1/4" SS316 BOX BEAM.

(43) 6" CONCRETE BALLAST REINFORCED WITH WWF 4X4XW1.4XW1.4 .

(44) 48" DIA. X 1" SS316 PLATE. WELD BOX BEAM TO PLATE.

(45) TWO LAYERS OF 60 MIL HDPE LINER BETWEEN PLATE AND UPPER LINER.

(53) COMPACT TO 95% OF MAXIMUM DRY DENSITY PER ASTM D698.

CONSTRUCTION NOTES

(1) CONSTRUCT 4' DIA. PRECAST CONCRETE MANHOLE PER ASTM C478. MANHOLE INVERT TO HAVE A 6" DEEP SUMP. CONSTRUCT FLOOR TO SLOPE TO SUMP.

(2) IMBED A HALLIDAY SERIES WIR 3030 ALUMINUM, 30" X 30" CLEAR OPENING SINGLE DOOR ACCESS HATCH IN THE FLAT CONCRETE TOP. PROVIDE DRAIN FROM CHANNEL FRAME TO SIDE OF CONCRETE PAD. INSTALL DOOR SO IT OPENS TOWARD THE POND AS NOTED ON SECTION L.

(3) PROVIDE AND INSTALL A HALLIDAY PROTECTIVE GRATING PANEL ACCESS HATCH.

(4) CONSTRUCT A 6'–0" X 10'–0" X 6" CONCRETE PAD AROUND THE MANHOLE. INSTALL #4 @ 12" EACH WAY IN CONCRETE PAD. COMPACT NATIVE SOIL UNDER COLLECTION MANHOLE SLAB TO 95% MAXIMUM DENSITY AS PER ASTM D698.

(5) INSTALL LEACHATE PUMP, PIPING, POWER AND CONTROLS AS REQUIRED TO PUMP LEACHATE BACK TO POND. PUMP AND APPURTENANCES TO BE SIZED FOR ALERT LEVEL 2 (AL2) AS DETERMINED BY LINER TESTS AND THE CEC. SIZE PUMP FOR A MINIMUM FLOW OF 25 GPM PENDING RESULTS OF LINER TESTS. PUMP TO BE HARD WIRED TO CONTROL PANEL ADJACENT TO THE CONCRETE SLAB. CONTROLS TO HAVE MAIN POWER ON/OFF SWITCH, BREAKER, AUTO/ON/OFF, RUNNING TIME METER, AND OVERLOAD RED LIGHT. CONTROLS TO BE MOUNTED IN POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB.

(5A) DO NOT INSTALL CHECK VALVE AT PUMP. SLOPE PIPE SO THAT IT DRAINS BACK TO MANHOLE OR TO POND SO WATER WILL NOT STAND IN PIPE.

(6) 6" BLOCKOUT IN MH TOP FOR DISCHARGE PIPE.

(7) INSTALL AN ELECTRIC LEAK SENSOR TO SENSE WATER IN THE COLLECTION MANHOLE AND TO START THE PUMP. SENSOR TO ALSO START A GREEN BLINKING LIGHT TO SIGNAL TO OPERATORS THAT THE COLLECTION MANHOLE HAS WATER AND THE PUMP HAS STARTED. WHEN PUMP STOPS, WATER SENSOR TO SEND A SIGNAL TO STOP GREEN LIGHT FROM BLINKING. LIGHT AND SENSOR CONTROLS TO BE MOUNTED ON POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB. SENSOR LOCATION TO BE VERTICALLY ADJUSTABLE.

(8) INSTALL 2" DISCHARGE PIPE FROM THE PUMP TO THE POND. THE PUMP SHALL BE PIPED AND VALVED TO DISCHARGE BACK INTO THE SURFACE IMPOUNDMENT OR TO A TANKER TRUCK. THE DISCHARGE PIPE SHALL BE EQUIPPED WITH A RECORDING FLOW METER SHOWING THE PUMP TOTAL FLOW IN GALLONS AND INSTANTANEOUS FLOW RATES IN GPM.

(9) INSTALL POND DISCHARGE AT DISCHARGE PIPE AS PER POND DISCHARGE PIPE DETAIL.

(10) INSTALL FLANGED CONNECTION FOR TANKER TRUCK. CONTRACTOR TO COORDINATE WITH OWNER FOR ADDITIONAL SPECIAL FITTINGS REQUIRED BY TANKER TRUCKS TO CONNECT TO PIPE.

(11) PROVIDE CRADLE TYPE PIPE SUPPORTS ANCHORED TO CONCRETE TO SUPPORT PIPE, METER AND VALVES 12" ABOVE CONCRETE.

(12) INSTALL 2" DIAMETER NIBCO GATE VALVE WITH HANDWHEEL OPERATOR.

Note:
It shall be the responsibility of the Contractor to engage a licensed soil testing facility to ensure the minimum conductivity required. Results of material testing shall be approved by the Owner or Owner's representative, prior to the commencement of the evaporation pond construction.

811 Dig Alert
Dial toll free
1–800–227–2600
At least two days before you dig

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/14/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

ALPHA SITE DETAILS (2 OF 2)

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C007
SHEETS: 7 SHEET NO: 7
SCALE:

ANSI D

PERMIT PLANS

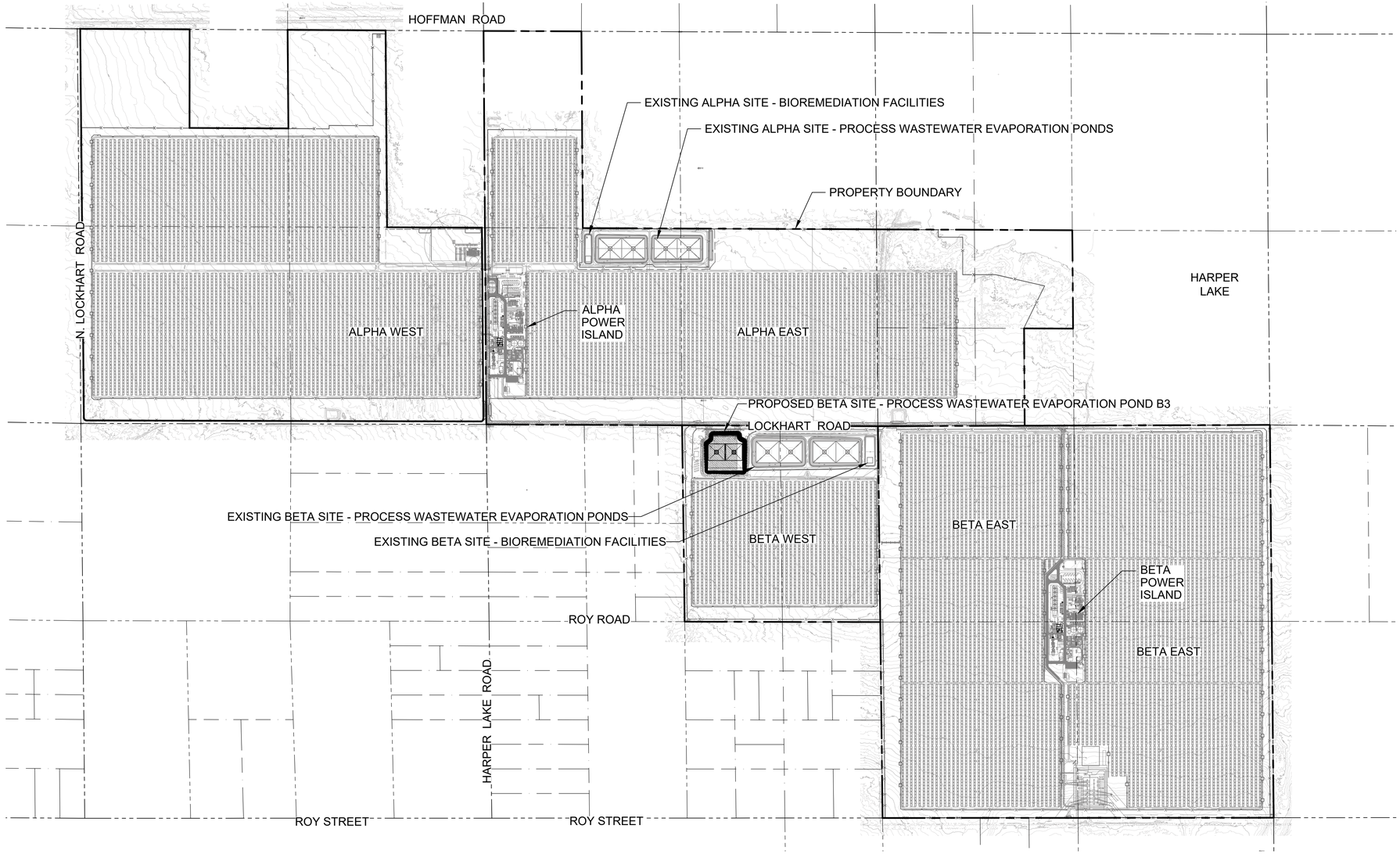
PROCESS WASTEWATER EVAPORATION POND - BETA POND B3

For

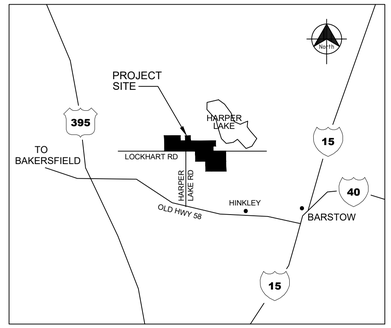
MOJAVE SOLAR PROJECT

PORTIONS OF SECTIONS 28, 29, 32, AND 33, TOWNSHIP 11 NORTH, RANGE 4 WEST AND PARCEL 4 OF PARCEL MAP NO. 12194, IN THE CITY OF HINKLEY, SAN BERNARDINO BASE AND MERIDIAN, SAN BERNARDINO COUNTY, CALIFORNIA

SHEET INDEX:



SITE MAP



VICINITY MAP

NTS

BASIS OF BEARINGS:

CALIFORNIA STATE PLANE COORDINATE SYSTEM NAD 83, ZONE 5

BENCHMARK:

NGS BENCHMARK NO. 2260-25-LC:

SURVEY DISK, STAMPED "25 LC 1958 EL=2260". 19.4 MI SOUTH-EAST FROM BORON. 19.35 MI SOUTH-EAST ALONG THE AT&SF RAILWAY FROM THE STATION AT BORON, 0.05 MI WEST OF THE CROSSING OF HARPER LAKE ROAD, 44.9 FEET SOUTH OF THE SOUTH RAIL, 1.8 FEET WEST OF A WITNESS POST, ABOUT 1 1/2 FEET LOWER THAN THE TRACK, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.3 FEET ABOVE THE GROUND. SEC. 19, T1N, R4W CITY OF HINKLEY, SAN BERNARDINO BASE AND MERIDIAN

ELEVATION = 2262.77 FEET (NAVD 88)

North

GRAPHIC SCALE

800 0 400 800

(IN FEET)

811 Dig Alert

Dial toll free

1-800-227-2600

At least two days before you dig

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/17/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

COVER SHEET

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C001

SHEETS: 7 SHEET NO: 1

SCALE: 1"= 800'

ANSI D

GENERAL NOTES

1. ALL WORK SHOWN HEREON SHALL BE DONE IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS, SPECIFICATIONS, THE SAN BERNARDINO SPECIAL DISTRICTS DEPARTMENT STANDARDS FOR SANITARY SEWER DIVISIONS C, D AND E, DATED AUGUST 2009, THE LATEST CALIFORNIA BUILDING CODE (UNIFORM BUILDING CODE) AND UNIFORM PLUMBING CODE.
2. IT SHALL BE THE RESPONSIBILITY OF THE BIDDER TO VERIFY, AND CORRECT, ALL QUANTITIES INCLUDING EXCAVATION, BORROW, EMBANKMENT, SHRINK OR SWELL, GROUND COMPACTION, HAUL AND ANY OTHER ITEMS AFFECTING HIS BID TO COMPLETE THE WORK SHOWN ON THE PLANS AND TO BASE HIS BID SOLELY UPON HIS OWN VERIFIED QUANTITIES IRRESPECTIVE OF THE ESTIMATES FURNISHED. IT SHALL BE THE BIDDER'S RESPONSIBILITY TO NOTIFY THE ABENER / TEYMA, DURING THE BIDDING PROCESS, OF ANY MAJOR DISCREPANCIES. THE BIDDER AGREES WITH THE QUANTITIES SHOWN ON THESES PLANS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ESTIMATES, BIDS, CONSTRUCTION, OR OTHER ACTIONS OR DECISIONS MADE WHICH HAVE BEEN BASED ON PRELIMINARY OR UNAPPROVED PLANS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE, VERIFY, AND ACCEPT ALL CONSTRUCTION STAKES PRIOR TO STARTING ANY CONSTRUCTION.
5. ANY AND ALL ITEMS EXISTING SHALL BE PROTECTED BY CONTRACTOR AND IF ANY ITEM(S) MUST BE REMOVED IN ORDER TO FACILITATE CONSTRUCTION, CONTRACTOR SHALL REPLACE THE ITEM(S) TO THE SAME OR BETTER CONDITION THAN IT WAS BEFORE REMOVAL.
6. ANY ALTERATIONS OR ADDITIONS TO THESE PLANS MUST BE APPROVED BY ENGINEER-OF-RECORD, AND ABENER / TEYMA.
7. AN APPROVED SET OF PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
8. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL NECESSARY REGULATIONS AND REQUESTS BY THE STATE AND/OR COUNTY REGARDING DUST CONTROL.
10. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL EXISTING UTILITIES.
11. OBSTRUCTIONS TO PROPOSED IMPROVEMENTS IN THE RIGHT-OF-WAY SHALL BE REMOVED OR RELOCATED BEFORE BEGINNING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
12. IF APPLICABLE, SUBMIT SHORING PLANS AND CALCULATIONS TO THE ENGINEER FOR REVIEW.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS PRIOR TO CONSTRUCTION.
14. PERMITTING AGENCY ACCEPTANCE OF PLANS DOES NOT RELIEVE THE OWNER OR CONTRACTOR FROM RESPONSIBILITIES FOR THE CORRECTION OF ERROR AND OMISSION DISCOVERED DURING CONSTRUCTION. UPON REQUEST OF THE BUILDING INSPECTOR, THE REQUIRED PLAN AND REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE BUILDING AND SAFETY OFFICIAL FOR REVIEW.
15. PRIOR TO THE START OF GRADING ALL EXISTING VEGETATION AND DEBRIS, INCLUDING EXISTING STRUCTURES, FOOTING, FOUNDATION, RUBBLE, TREES AND ROOT SYSTEMS SHALL BE REMOVED FROM THE SITE.
16. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE EXPOSED SOILS, AND ANY ADDITIONAL OVER EXCAVATION SHALL THEN BE MADE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATION AND AS CONTAINED IN THE SOILS REPORT.
17. EXPOSED SOILS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES, BROUGHT TO PROPER MOISTURE CONTENT AND COMPACTED TO AT LEAST 90% OF THE MAXIMUM DENSITY, AS DETERMINED BY APPENDIX SECTION 3305 OF THE LATEST CALIFORNIA BUILDING CODE OR EQUIVALENT. COMPACTION SHALL BE OBTAINED BY METHODS SPECIFIED BY THE GEOTECHNICAL ENGINEER.
18. IF ANY UNFORESEEN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION THEY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE GEOTECHNICAL ENGINEER AND RESIDENT ENGINEER BEFORE PROCEEDING FURTHER.
19. THE CONTRACTOR SHALL TAKE PROTECTIVE MEASURES SO AS NOT TO CAUSE ANY MUD, SILT OR DEBRIS TO BE DEPOSITED ONTO PUBLIC OR ADJACENT PROPERTY AT ALL TIMES DURING CONSTRUCTION. ANY MUD OR DEBRIS ON PUBLIC PROPERTY SHALL BE REMOVED IMMEDIATELY.
20. NO GRADING SHALL COMMENCE WITHOUT OBTAINING GRADING PERMIT AND NOTIFYING RESIDENT ENGINEER 24 HOURS PRIOR TO START OF WORK.
21. RESPONSIBILITY FOR GRADING AND INSPECTION SHALL BE ASSUMED BY THE RESIDENT ENGINEER IN ACCORDANCE WITH APPENDIX SECTION 3317 OF THE LATEST CALIFORNIA BUILDING CODE.
22. THE GEOTECHNICAL ENGINEER SHALL ALSO BE RESPONSIBLE TO VERIFY AND REPORT THAT PROPER COMPACTION HAS BEEN OBTAINED BY CONTRACTOR CONCERNING UTILITY BACKFILL INCLUDING, BUT NOT LIMITED TO EVAPORATION PONDS, SEWER LINES, WATER LINES, ELECTRICAL, GAS AND LANDSCAPE IRRIGATION LINES.
23. NO ADJUSTMENT OF ELEVATION SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE BUILDING AND SAFETY OFFICIAL AND THE CIVIL ENGINEER OF RECORD.
24. TO THE EXTENT PRACTICAL, THE DESIGN OF THE NEW EVAPORATION PONDS FOLLOW THE ORIGINAL DESIGN PLANS PREPARED BY GANNETT FLEMING (2012), INCLUDING CALLOUTS AND GENERAL LAYOUT OF THE POND COMPONENTS FOR CONSISTENCY.

EVAPORATION PONDS

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL PROVIDE A QUALITY ASSURANCE/QUALITY CONTROL PROGRAM FOR LINER INSTALLATION. DURING INSTALLATION, THE CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN A MANNER THAT MINIMIZES POTENTIAL FOR DAMAGE TO THE LINER. ANY DAMAGE TO THE LINER SHALL BE IMMEDIATELY REPAIRED.
2. CONTRACTOR TO PERFORM PRE-CONSTRUCTION NEST SURVEYS IF CONSTRUCTION ACTIVITIES WILL OCCUR FROM FEBRUARY 1 THROUGH AUGUST 1 [CONDITION OF CERTIFICATION (COC) BIO-8].
3. CONTRACTOR SHALL CONFIRM THAT OWNER HAS COMPLETED THE BIOLOGICAL OPINION PRIOR TO SITE MOBILIZATION (COC BIO-21).
4. CONTRACTOR SHALL CONFIRM THAT OWNER HAS THE FINAL EVAPORATION POND MONITORING AND ADAPTIVE MANAGEMENT PLAN (COC BIO-19) PRIOR TO BEGINNING OPERATION OF THE EVAPORATION PONDS.
5. CONTRACTOR TO SUBMIT, FOR APPROVAL, SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT PRIOR TO ORDERING ANY MATERIALS OR EQUIPMENT. CONTRACTOR TO PROVIDE CERTIFICATION AND OTHER DOCUMENTATION AS REQUESTED TO CONFIRM THAT HDPE LINER AND OTHER MATERIALS WILL MEET THE POTENTIAL OPERATING CONDITIONS PROPOSED IN THIS PROJECT.
6. ALL WIRING TO CONFORM TO THE NATIONAL ELECTRIC CODE.
7. ALL SEAMS ON ALL HDPE LINERS WILL BE TESTED FOR LEAKAGE. ANY LEAKS WILL BE REPAIRED AND THE LINER RETESTED UNTIL IT PASSES.
8. CONTRACTOR TO PROVIDE OPERATION AND MAINTENANCE MANUALS AND TRAINING FOR ALL EQUIPMENT. O&M MANUALS TO BE THREE RING, HEAVY DUTY D-TYPE, AND INCLUDE COVER AND SIDE TITLE SHEETS, INSIDE TITLE SHEET, TABLE OF CONTENTS, MANUALS FOR EACH PIECE OF EQUIPMENT DESCRIBING NORMAL O&M, TEST PROCEDURES, TROUBLESHOOTING PROCEDURES, SPARE PARTS LIST, LUBRICATION SCHEDULE WITH LIST OF LUBRICANTS, SUPPLIER CONTACT AND MANUFACTURER CONTACT INFORMATION AS A MINIMUM.
9. THE ESTIMATED ACTION LEAKAGE RATE (ALR) FOR THE EVAPORATION PONDS, AS DOCUMENTED IN THE APRIL 2010 ROWD, IS 2,750 GALLONS PER ACRE PER DAY. THIS IS BASED ON ONE STANDARD HOLE PER ACRE, A DRAINAGE LAYER GEONET WITH HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AND A 50% SAFETY FACTOR. BASED ON A 5.0-ACRE POND, EACH EVAPORATION POND WOULD HAVE AN ALR OF 13,750 GALLONS PER DAY. THE CONTRACTOR SHALL PROVIDE CALCULATIONS PRIOR TO CONSTRUCTION SHOWING THE GEONET AND LINER SYSTEM PROPOSED BY THE CONTRACTOR WILL MEET THESE FLOW REQUIREMENTS. AT THE COMPLETION OF CONSTRUCTION, PRIOR TO DISCHARGE TO THE PONDS, THE CONTRACTOR SHALL PERFORM FIELD TESTS TO VERIFY THE ACTUAL HYDRAULIC CONDUCTIVITY OF THE GEONET. THE RESULTS OF THE FIELD TESTS SHALL BE SUBMITTED TO THE OWNER. THE OWNER WILL PROVIDE THE CALCULATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR REVIEW. IF THE CONSTRUCTED LINER/GEONET SYSTEM DOES NOT PROVIDE ACCEPTABLE FLOWS AS DETERMINED BY THE CALIFORNIA ENERGY COMMISSION, THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH THE CALIFORNIA ENERGY COMMISSION TO REVISE THE ALR AND ANY OTHER DOCUMENTS OR MATERIALS AND INSTALLATION TO ALLOW THE EVAPORATION PONDS TO BE PERMITTED AND USED.
10. CONTRACTOR TO COORDINATE THE CONSTRUCTION OF THE EVAPORATION PONDS WITH THE INSTALLATION OF THE MONITORING WELLS.
11. THERE SHALL BE NO DISCHARGE, BYPASS, OR DIVERSION OF WASTEWATER FROM THE COLLECTION, CONVEYANCE, OR DISPOSAL FACILITIES TO ADJACENT LAND AREAS OR SURFACE WATERS.
12. BIRD DETERRENT SYSTEMS AS REQUIRED BY THE CEC SHALL BE PROVIDED BY OTHERS.

EVAPORATION POND UTILITY NOTES

1. POND FORCE MAIN MINIMUM DEPTH OF BURY SHALL BE 4 FEET BELOW FINISHED GRADE.
2. ABOVE GROUND 3-INCH AND SMALLER VALVES SHALL BE AS MANUFACTURED BY NIBCO OR EQUAL, WITH HANDWHEEL OPERATORS. BURIED 4-INCH AND LARGER GATE VALVES TO BE RESILIENT SEAT VALVES AS MANUFACTURED BY MUELLER AND CO. , KEYSTONE OR EQUAL. BURIED VALVES SHALL HAVE MJXMJ CONNECTIONS, HAVE CONCRETE BASE, 2" SQUARE OPERATING NUTS, VALVE CAN AND COVER, AND 2-FOOT SQUARE CONCRETE PAD, UNLESS OTHERWISE NOTED.
3. INSTALL MECHANICAL RESTRAINT ON ALL UNRESTRAINED PIPE, FITTINGS AND VALVES AS RECOMMENDED BY MECHANICAL RESTRAINT SUPPLIER. MECHANICAL RESTRAINT SHALL BE AS MANUFACTURED BY EBAA IRON OR EQUAL. CONTRACTOR SHALL PROVIDE TABLE OF TYPICAL DISTANCES FOR JOINT RESTRAINT WITH SHOP DRAWINGS FOR APPROVAL.
4. ALL ABOVE GROUND PIPING, FITTINGS, VALVES AND APPURTENANCES SHALL BE INSULATED USING ALUMINUM WRAPPED FIBERGLASS OR EQUAL. INSULATION SHALL BE SEALED TO PREVENT MOISTURE FROM ENTERING THE JACKETING.
5. FORCE MAIN PIPE AND FITTINGS (NOTE 22) SHALL BE WHITE SCHEDULE 80 PVC. ALL PVC SCHEDULE 80 PIPE SHALL BE MANUFACTURED FROM A TYPE I, GRADE I POLYVINYL CHLORIDE (PVC) COMPOUND WITH A CELL CLASSIFICATION OF 12454 PER ASTM D1784. THE PIPE SHALL BE MANUFACTURED IN STRICT COMPLIANCE TO ASTM D1785, CONSISTENTLY MEETING AND/OR EXCEEDING THE QUALITY ASSURANCE TEST REQUIREMENTS OF THIS STANDARD WITH REGARD TO MATERIAL, WORKMANSHIP, BURST PRESSURE, FLATTENING AND EXTRUSION QUALITY. THE PIPE SHALL BE MANUFACTURED IN THE USA, USING DOMESTIC MATERIALS, BY AN ISO 9001 CERTIFIED MANUFACTURER. STANDARD LENGTHS OF PIPE SIZES 6" AND LARGER SHALL BE BEVELED EACH END BY THE PIPE MANUFACTURER. ALL PIPE SHALL BE STORED INDOORS AFTER PRODUCTION AT THE MANUFACTURING SITE UNTIL SHIPPED FROM FACTORY. THIS PIPE SHALL CARRY THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER APPLICATIONS. CONTRACTOR TO CONFIRM MAXIMUM FORCE MAIN PRESSURE RATING IS SUFFICIENT TO ACCOMMODATE MAXIMUM PUMP PRESSURE WITH OWNER PRIOR TO CONSTRUCTION.
6. FORCE MAIN PIPE AND FITTINGS (NOTE 22A) SHALL BE LINED DUCTILE IRON, CLASS 350, CONFORMING TO AWWA C151, C104 AND C111.
7. WASTEWATER AIR RELEASE VALVES (ARV) SHALL BE INSTALLED AT HIGH POINTS ON THE EVAPORATION POND FORCE MAIN. ARV's SHALL BE 2", 150 PSI AS MANUFACTURED BY APCO SERIES 400 OR VALMATIC SEERIES 48A, OR EQUAL, FOR INSTALLATION IN WASTEWATER FORCE MAINS. THE ARV's SHALL BE INSTALLED AS SHOWN ON THE AIR RELEAVE VALVVE DETAIL. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING WASTEWATER FORCE MAIN AT A UNIFORM SLOPE TO MAINTAIN THE NEED FOR FOR THE ARV's AND FOR LOCATIONG THE ARV's AT HIGH POINTS IN THE PIPE AS NEEDED.

LEGEND AND ABBREVIATIONS

PROPERTY LINE
CENTER LINE
SECTION LINE
MATCH LINE
GRADE BREAK
UNDERGROUND PIPE
xxx — 4' HIGH, CHAIN LINK FENCE
15' HIGH, CHAIN LINK WIND FENCE
VEHICLE GATE
TORTOISE FENCE
INDICATES NEW TOP OF EMBANKMENT
00.00 — FINISHED GRADE ELEVATION
IE=00.00 — INVERT ELEVATION
DIRECTION OF DRAINAGE FLOW
H.V.9028 724.23 — INDICATES SITE BENCHMARK
PRECAST CONCRETE MANHOLE
WATER VALVE
FC — WATER FLOW CONTROL VALVE
M — WATER METER
SURVEY MONUMENT
RETENTION BASINS
SOLAR COLLECTOR ASSEMBLY
GROUND
GATE VALVE W/ 2" SQ. OPERATING NUT
GATE VALVE W/ HANDWHEEL OPERATOR
GATE VALVE W/ HANDWHEEL OPERATOR

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ABC	ASPHALT BASE COURSE
@	AT
BM	BENCHMARK
CL	CENTERLINE
CLR	CLEAR
CF	CUBIC FEET
CMH	COLLECTION MANHOLE
CO	SEWER CLEANOUT
CONC	CONCRETE
CONT.	CONTOURS
COMP	COMPACTED
DIA	DIAMETER
DTL	DETAIL
DWLS	DOWELS
E	EASTING COORDINATE
EW	EACH WAY
E-W	EAST-WEST
EWEF	EACH WAY + EDGE OF FACE
FG	FINISH GRADE
FIN	FINISH
FT	FEET
FL	FLOW LINE
FM	EVAPORATION POND FORCE MAIN
HDPE	HIGH DENSITY POLYETHYLENE
HG	HIGH
HTF	HEAT TRANSFER FLUID
HWL	HIGH WATER LEVEL
H	HORIZONTAL
IE	INVERT ELEVATION
IN	INCHES
LBS	POUNDS
LCRS	LEACHATE COLLECTION REMOVAL SYSTEM
LF	LINEAL FEET
LTU	LAND TREATMENT UNIT
MAX	MAXIMUM
N	NORTHING COORDINATE
N-S	NORTH-SOUTH
NPAP	NEUTRON PROBE ACCESS PORT
NPTM	NEUTRON PROBE TEST MAIN
N.T.S.	NOT TO SCALE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
P/L	PROPERTY LINE
QTY	QUANTITY
RD	ROAD
SAN	SANITARY SEWER
SEC	SECTION
SPEC	SPECIFICATION
SPCC	SPILL PREVENTION CONTROL + COUNTERMEASURE
STA	STATION
STD	STANDARD
T+B	TOP AND BOTTOM
TYP	TYPICAL
VLV	VALVE
WD	WIDE

SEQUENCE OF OPERATIONS

1. BEFORE ANY CONSTRUCTION, DEMOLITION, OR DEVELOPMENT ACTIVITY, A PRE CONSTRUCTION MEETING MUST BE HELD BETWEEN THE FEDERAL, STATE, AND LOCAL OFFICIALS HAVING JURISDICTION OVER THE PARTICULAR OPERATION IN QUESTION, AND THE ENGINEER, THE OWNER, OR OWNERS REPRESENTATIVE AND THE CONTRACTOR.
2. VERIFY VERTICAL AND HORIZONTAL LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES. CONTACT ALL UTILITY COMPANIES THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION AND / OR DEMOLITION.
3. EXISTING UTILITY SERVICES TO REMAIN IN SERVICE DURING CONSTRUCTION.
4. VERIFY GRADES PRIOR TO CONSTRUCTION. FLAG CLEARING LIMITS.
5. ENSURE ALL STORM WATER POLLUTION PREVENTION MEASURES ARE IN PLACE PRIOR TO COMMENCEMENT OF WORK SHOWN ON THESE PLANS.
6. ENSURE ALL DEMOLITION WORK HAS BEEN COMPLETED PRIOR TO COMMENCEMENT OF WORK SHOWN ON THESE PLANS.
7. CLEAR AND GRUB AREAS OF THE SITE TO BE ROUGH GRADED OR FILLED.

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MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

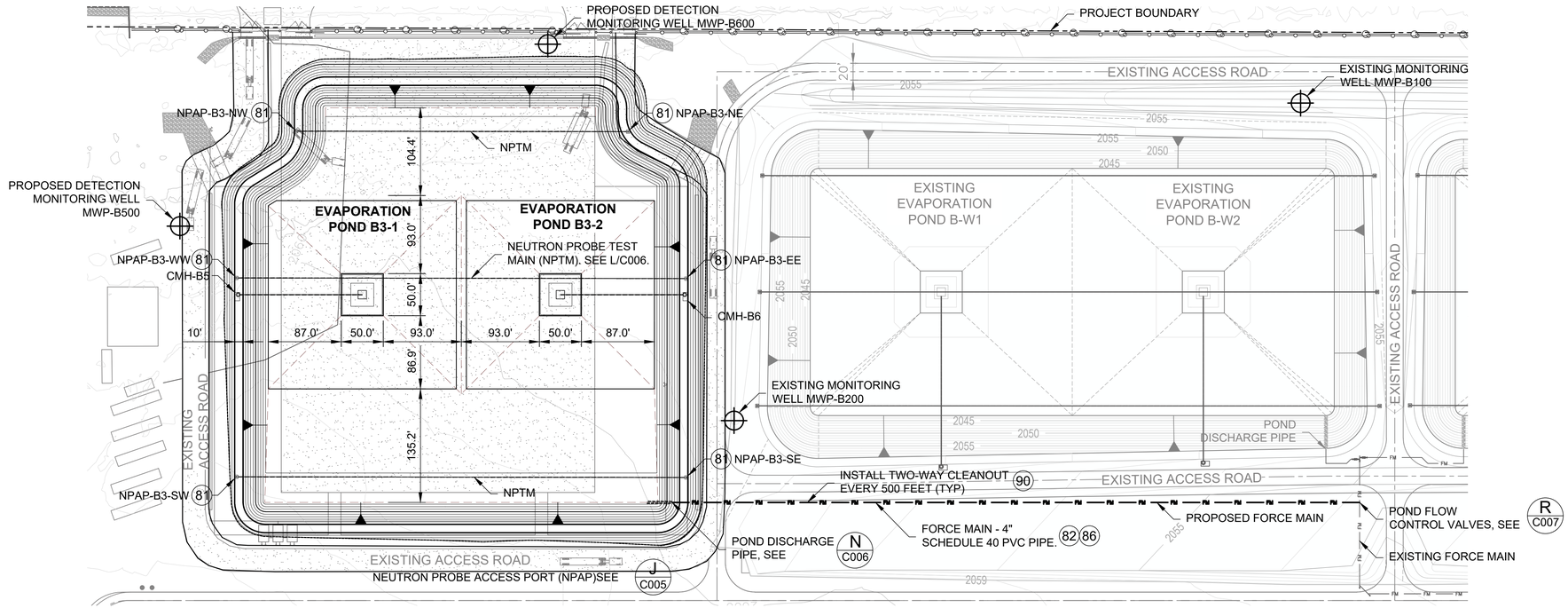
GENERAL NOTES, LEGEND AND ABBREVIATIONS

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C002
SHEETS: 7 SHEET NO: 2
SCALE:

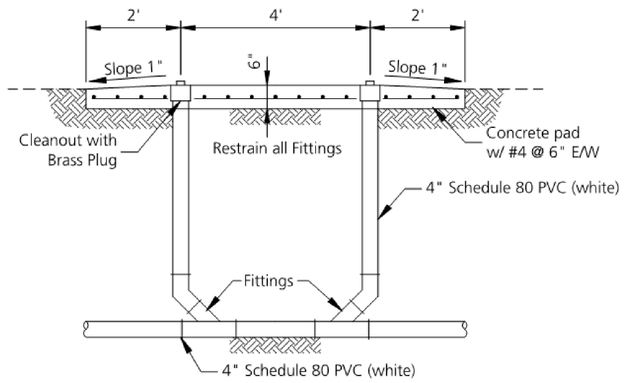
ANSI D



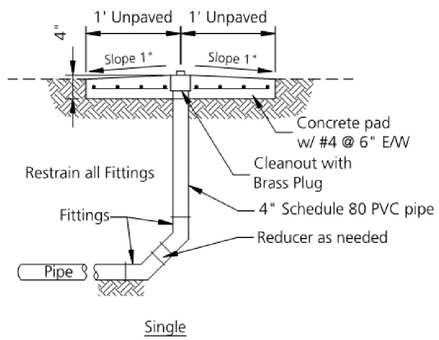
ALPHA POND B-3

TABLE 1
COLLECTION MANHOLE COORDINATES

POND	MH#	NORTHING	EASTING
B-3	CMH-B5	2190502.0	6765155.4
B-3	CMH-B6	2190502.0	6765687.2



Two Way



Single

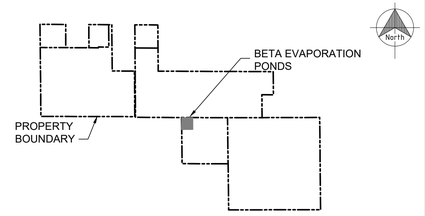
Notes:

1. Construct cleanout to withstand a pressure of 150 psi.
2. Compact soil to 95% maximum density as per ASTM D-698.

Cleanout Details 1
N.T.S. -

NEUTRON PROBE NOTES

1. CONTRACTOR SHALL INSTALL A LEAK DETECTION SYSTEM FOR NEUTRON PROBES CONSISTING OF CONTINUOUS CARRIER PIPES INSTALLED AT THE SIDES AND LOW POINT OF EACH EVAPORATION POND. PIPES WILL BE INSTALLED AT A DEPTH OF APPROXIMATELY FIVE FEET BELOW THE SECONDARY LINER AS SHOWN ON THE DRAWINGS.
2. PRIOR TO BEGINNING CONSTRUCTION OF THE EVAPORATION PONDS AND NEUTRON PROBE LEAK DETECTION SYSTEM, CONTRACTOR SHALL EVALUATE THE OWNER'S NUETRON PROBE FOR SIZE AND DIMENSIONS. CONTRACTOR SHALL INSTALL TO ALLOW OWNER'S NUETRON PROBE TO BE PULLED THROUG THE CARRIER PIPES.
3. AFTER CONSTRUCTION OF THE PONDS BUT BEFORE FILLING THE PONDS, CONTRACTOR SHALL WORK WITH THE OWNER'S CONSULTANT TO PULL THE NEUTRON PROBE THROUGH THE PIPES TO ASSESS THE BACKGROUND MOISTURE CONTENT OF THE VADOSE ZONE SOILS UNDER THE PONDS AND TO ESTABLISH A CALIBRATION LEVEL AGAINST WHICH THE FUTURE SOIL WATER CONTENT BELOW THE PONDS WILL BE BASED.
4. THE NEUTRON SAMPLING METHOD SHALL BE UNDERTAKEN BY THE TRAINED, CERTIFIED AND LICENSED TECHNICIAN.
5. THE OWNER'S CONSULTANT SHALL TAKE NEUTRON PROBE MEASUREMENTS BENEATH EACH POND, THROUGH EACH PIPE, A MINIMUM OF FOUR TIMES TO OBTAIN A VALUE THAT IS STATISTICALLY REPRESENTATIVE OF BACKGROUND MOISTURE CONDITIONS AS REQUIRED IN THE PROJECT DETECTION MONITORING PROGRAM.
6. THE OWNER'S CONSULTANT SHALL PERFORM A STATISTICAL ANALYSIS TO DEVELOP THE BACKGROUND SOIL MOISTURE CONTENT AS PER THE PROJECT DETECTION MONITORING PROGRAM.
7. THE OWNER'S CONSULTANT WILL PROVIDE THE DRAFT RESULTS OF THE INITIAL MONITORING IN HARD COPY (THREE COPIES) AND DIGITAL COPY (THREE COPIES) TO THE OWNER FOR THEIR REVIEW.



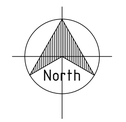
CONSTRUCTION NOTES

(81) CONSTRUCT NEUTRON PROBE ACCESS PORTS AT CURVE RETURNS AND POND CENTERLINE AT OUTSIDE EDGE OF BERM. SEE DETAIL J, SHEET C005.

(82) INSTALL 4–INCH DIAM. WHITE SCHEDULE 80 PVC FORCE MAIN INCLUDING TRENCHING, BEDDING, PIPE FITTINGS, RESTRAINT, BACKFILL, COMPACTION AND TESTING. TESTING SHALL CONFORM TO TESTING FOR POTABLE WATER MAINS.

(86) INSTALL AIR RELEASE VALVES AT HIGH POINTS IN FORCE MAIN. INSTALL FORCE MAIN AT UNIFORM GRADE TO MINIMIZE THE NEED OF AIR RELEASE VALVES.

(90) INSTALL 4–INCH DIAM. SINGLE OR TWO–WAY CLEANOUT PER DETAIL 1 INCLUDING, SANITARY WYE, 45° BEND, FITTINGS, CAST IRON CLEANOUT CAP AND THREADED COVER AND 2–FOOT SQUARE CONCRETE PAD AROUND EACH CLEANOUT.



GRAPHIC SCALE
80 0 40 80
(IN FEET)

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MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

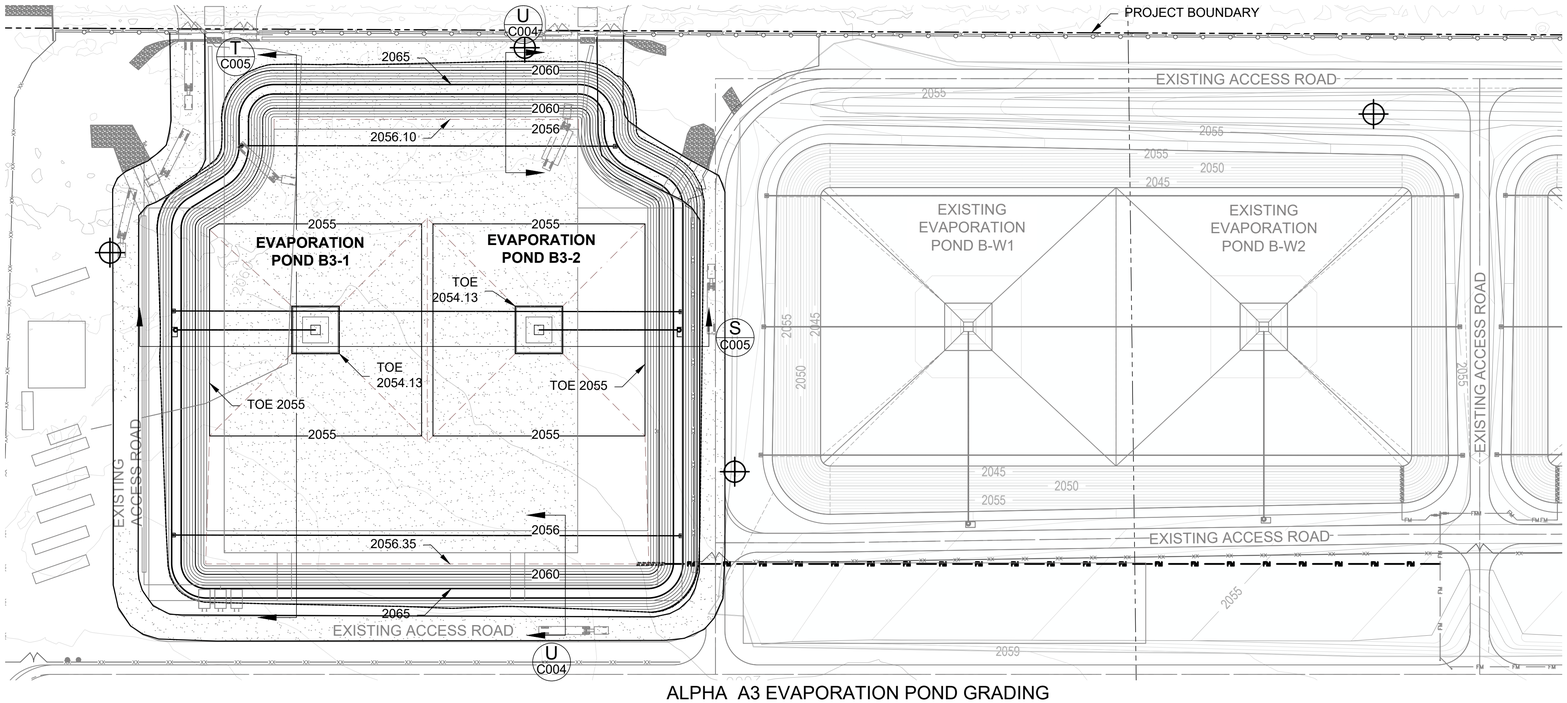
BETA SITE PLAN

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

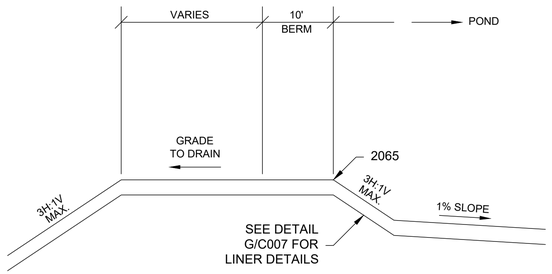
Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C003
SHEETS: 7 SHEET NO: 3
SCALE: 1"= 80'

ANSI D



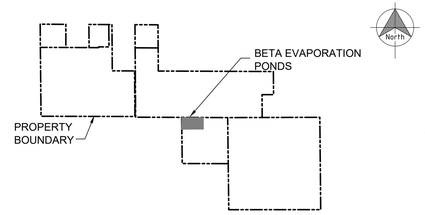
ALPHA A3 EVAPORATION POND GRADING



PERIMETER ROAD SECTION

N.T.S.

U C004



North

GRAPHIC SCALE

80 0 40 80

(IN FEET)

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MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

BETA SITE GRADING AND DRAINAGE PLAN

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

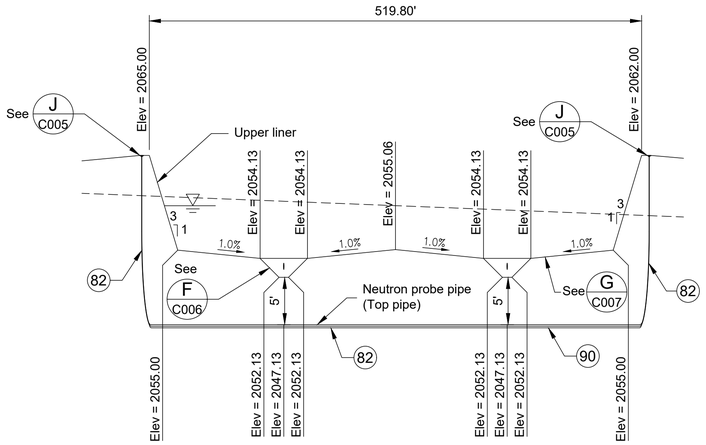
Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C004

SHEETS: 7 SHEET NO: 4

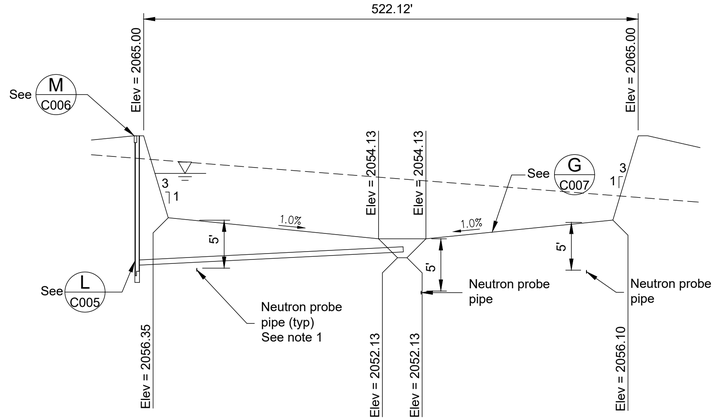
SCALE: 1"= 80'

ANSI D



Pond East-West Cross-section S

Scale:1" = 80' Horiz
1H:10V

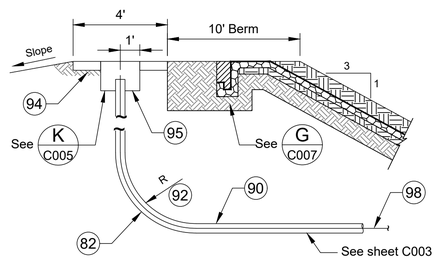


Pond North-South Cross-section T

Scale:1" = 80' Horiz
1H:10V

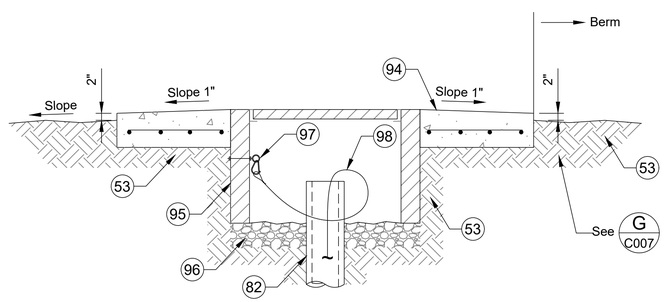
Note 1: Neutron Probe center pipe is 5' below collection area.
Pipes on north and south sides of ponds are 5' below pond toe.

See L C006



Neutron Probe Port Section J C005

NTS



Neutron Probe Port Detail K C005

NTS

CONSTRUCTION NOTES

(53) COMPACT TO 95% OF MAXIMUM DRY DENSITY PER ASTM D698.

(82) INSTALL 4–INCH HDPE DR 11 PIPE CONFORMING TO AWWA C–906 INCLUDING TRENCHING, BEDDING, PIPE, BACKFILL, COMPACTION AND TESTING. CONTRACTOR TO CONFIRM HDPE PIPE MATERIAL AND DIAMETER ARE COMPATIBLE WITH THE PROPOSED NEUTRON PROBE.

(90) SEE GENERAL NOTES FOR REQUIREMENTS TO CONFIRM COMPATIBILITY OF NEUTRON PROBE AND PIPE SYSTEM.

(92) INSTALL HDPE PIPE WITH A 20 FOOT MINIMUM RADIUS.

(94) CONSTRUCT 4'LX4'WX6'H 4000 PSI CONCRETE SLAB REINFORCED WITH #4@6" E/W. SLOPE CONCRETE 1" AS NOTED ON DETAIL.

(95) CAST 24"X18" WATER METER TYPE CAST IRON BOX WITH CAST IRON COVER IN CONCRETE SLAB.

(96) INSTALL 3" OF ¾ INCH DIAMETER ROCK UNDER CAST IRON BOX FOR DRAINAGE.

(97) INSTALL A 2" DIAMETER STAINLESS STEEL EYE BOLT IN THE SIDE OF THE CAST IRON BOX. SECURE A 3" LONG STAINLESS STEEL CARABINER TO THE EYE BOLT.

(98) PROVIDE 800 FEET OF 1/16" DIAMETER STRANDED 304 STAINLESS STEEL CABLE IN EACH NEUTRON INSPECTION PIPE. PROVIDE A 2' LOOP ON EACH END OF THE CABLE. LOOP THE CABLE IN THE MANHOLE AND SECURE ONE END OF THE CABLE TO THE CARABINER ON THE MANHOLE WALL. LOOP THE REMAINING CABLE IN THE CAST IRON BOX AND SECURE THE END OF THE CABLE TO THE CARABINER ON THE BOX WALL.

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MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

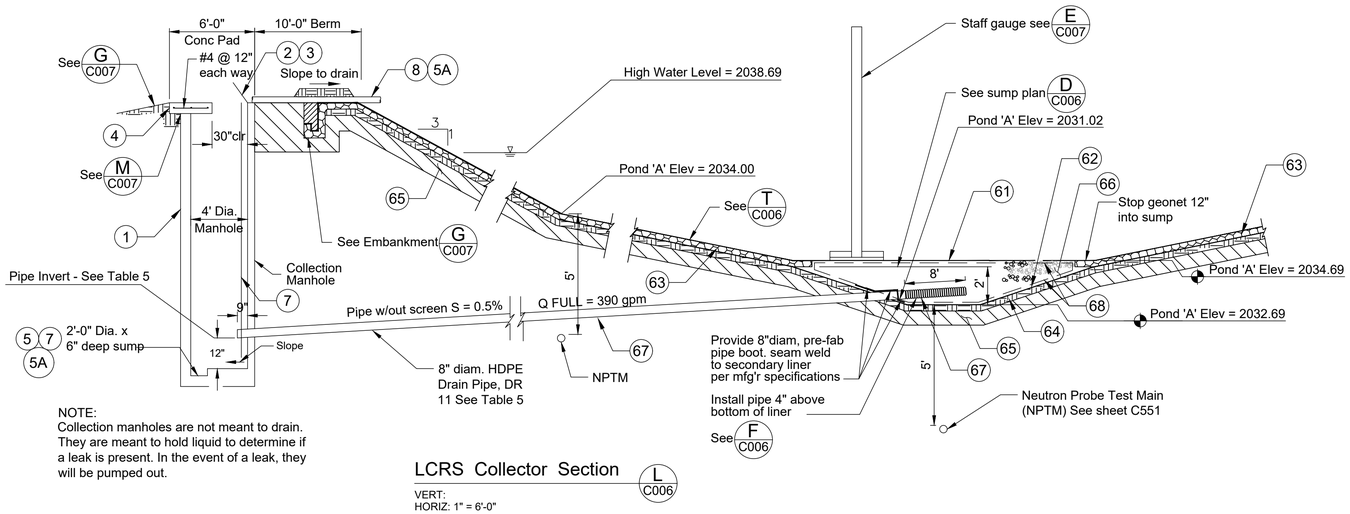
BETA SITE POND SECTIONS

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C005
SHEETS: 7 SHEET NO: 5
SCALE:

ANSI D



NOTE:
Collection manholes are not meant to drain. They are meant to hold liquid to determine if a leak is present. In the event of a leak, they will be pumped out.

LCRS Collector Section L C006

VERT:
HORIZ: 1" = 6'-0"

CONSTRUCTION NOTES

61 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) UPPER LINER. UPPER LINER TO BE 60 MIL, TEXTURED UPPER SURFACE AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

62 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) LOWER LINER. LOWER LINER TO BE 40 MIL AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

63 INSTALL AN INTERSTITIAL LEAK COLLECTION GEONET MATERIAL BETWEEN THE UPPER AND LOWER LINERS. THE GEONET WILL BE A MINIMUM OF 200 MIL WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AT A SLOPE OF 1% UNDER A HEAD OF 1 FOOT. GEONET SHALL BE HYPERNET AS MANUFACTURED BY GSE OR EQUIVALENT. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

INSTALL A BASE LAYER CONSISTING OF 12–INCHES OF ONSITE SOIL BELOW THE LOWER LINER. THE BASE LAYER WILL BE CONSTRUCTED TO CONTAIN NO PARTICLES LARGER THAN ONE INCH. BASE LAYER SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY PER ASTM D1557. PROOFROLL THE BASE TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT MATERIAL AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE

64 AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND FILL AS NOTED HERE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

AFTER ROUGH GRADE HAS BEEN ACHIEVED, AND PRIOR TO PLACEMENT OF THE BASE MATERIAL, PROOFROLL AND PREPARE THE EXPOSED SUBRADE BY DISCING AND MOISTURE CONDITIONING SOIL TO OPTIMUM MOISTURE CONTENT. PERFORM PROOFROLLING TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT SUBGRADE AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING

65 OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACEING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND AS NOTED HERE. REMOVE CALICHE OR CEMENTED LAYERS TO 8" BELOW SUBGRADE SURFACE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNIT UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

66 INSTALL A COLLECTION AREA IN THE LOW AREA OF EACH POND. COLLECTION AREA SHALL BE PLACED BETWEEN THE UPPER AND LOWER LINERS AND SHALL BE FILLED WITH 1/2–INCH WASHED GRAVEL TO A HEIGHT OF 1–INCH ABOVE THE GEONET.

INSTALL COLLECTION PIPE FROM THE COLLECTION AREA TO THE LEAK DETECTION SUMP. COLLECTION PIPE TO BE 8–INCH DIAMETER HDPE SDR 11 INSTALLED AT THE GRADE NOTED ON THE DRAWINGS. PERFORATED

67 SECTION OF HDPE PIPE SHALL HAVE 1/4–INCH DRILL HOLES SPACED AT 4 INCHES ALONG THE PIPE AND 8 ROWS OF PERFORATIONS EQUALLY SPACED AROUND THE PIPE. PIPE SHALL HAVE AN END CAP IN THE SUMP. BOOTS SHALL BE WELDED TO HDPE PIPE. COLLECTION PIPE TO BE CONNECTED TO THE LEAK DETECTION MANHOLE USING WATER TIGHT CONNECTION.

68 THE GRAVEL WITHIN THE SUMP SHALL BE UNDERLAIN BY 16OZ/SY NON–WOVEN GEOTEXTILE. THE SUMP GRAVEL SHALL ALSO BE OVERLAIN WITH A 16 OZ/SY NON–WOVEN GEOTEXTILE.

CONSTRUCTION NOTES

1 CONSTRUCT 4' DIA. PRECAST CONCRETE MANHOLE PER ASTM C478. MANHOLE INVERT TO HAVE A 6" DEEP SUMP. CONSTRUCT FLOOR TO SLOPE TO SUMP.

2 IMBED A HALLIDAY SERIES WIR 3030 ALUMINUM, 30" X 30" CLEAR OPENING SINGLE DOOR ACCESS HATCH IN THE FLAT CONCRETE TOP. PROVIDE DRAIN FROM CHANNEL FRAME TO SIDE OF CONCRETE PAD. INSTALL DOOR SO IT OPENS TOWARD THE POND AS NOTED ON SECTION L.

3 PROVIDE AND INSTALL A HALLIDAY PROTECTIVE GRATING PANEL ACCESS HATCH.

4 CONSTRUCT A 6'–0" X 10'–0" X 6" CONCRETE PAD AROUND THE MANHOLE. INSTALL #4 @ 12" EACH WAY IN CONCRETE PAD. COMPACT NATIVE SOIL UNDER COLLECTION MANHOLE SLAB TO 95% MAXIMUM DENSITY AS PER ASTM D698.

5 INSTALL LEACHATE PUMP, PIPING, POWER AND CONTROLS AS REQUIRED TO PUMP LEACHATE BACK TO POND. PUMP AND APPURTENANCES TO BE SIZED FOR ALERT LEVEL 2 (AL2) AS DETERMINED BY LINER TESTS AND THE CEC. SIZE PUMP FOR A MINIMUM FLOW OF 25 GPM PENDING RESULTS OF LINER TESTS. PUMP TO BE HARD WIRED TO CONTROL PANEL ADJACENT TO THE CONCRETE SLAB. CONTROLS TO HAVE MAIN POWER ON/OFF SWITCH, BREAKER, AUTO/ON/OFF, RUNNING TIME METER, AND OVERLOAD RED LIGHT. CONTROLS TO BE MOUNTED IN POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB.

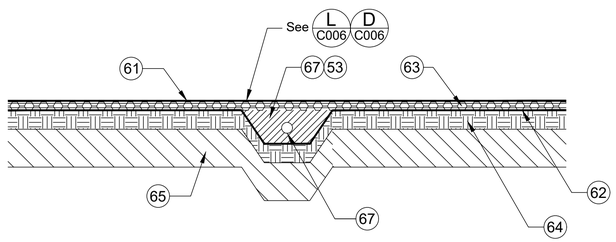
5A DO NOT INSTALL CHECK VALVE AT PUMP. SLOPE PIPE SO THAT IT DRAINS BACK TO MANHOLE OR TO POND SO WATER WILL NOT STAND IN PIPE.

7 INSTALL AN ELECTRIC LEAK SENSOR TO SENSE WATER IN THE COLLECTION MANHOLE AND TO START THE PUMP. SENSOR TO ALSO START A GREEN BLINKING LIGHT TO SIGNAL TO OPERATORS THAT THE COLLECTION MANHOLE HAS WATER AND THE PUMP HAS STARTED. WHEN PUMP STOPS, WATER SENSOR TO SEND A SIGNAL TO STOP GREEN LIGHT FROM BLINKING. LIGHT AND SENSOR CONTROLS TO BE MOUNTED ON POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB. SENSOR LOCATION TO BE VERTICALLY ADJUSTABLE.

8 INSTALL 2" DISCHARGE PIPE FROM THE PUMP TO THE POND. THE PUMP SHALL BE PIPED AND VALVED TO DISCHARGE BACK INTO THE SURFACE IMPOUNDMENT OR TO A TANKER TRUCK. THE DISCHARGE PIPE SHALL BE EQUIPPED WITH A RECORDING FLOW METER SHOWING THE PUMP TOTAL FLOW IN GALLONS AND INSTANTANEOUS FLOW RATES IN GPM.

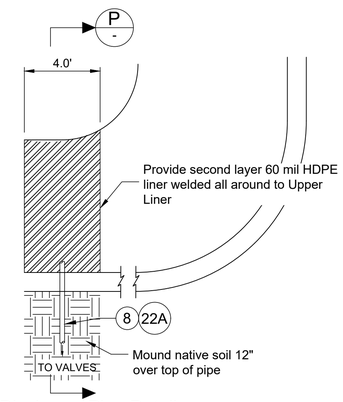
9 INSTALL POND DISCHARGE AT DISCHARGE PIPE AS PER POND DISCHARGE PIPE DETAIL.

22A DISTRIBUTION PIPE TO BE 4" DIP. ALL FITTINGS TO BE DIP. ALL PIPES TO BE RESTRAINED.



Sump Section F C006

SCALE: NTS



Pond Discharge Pipe Detail N C006

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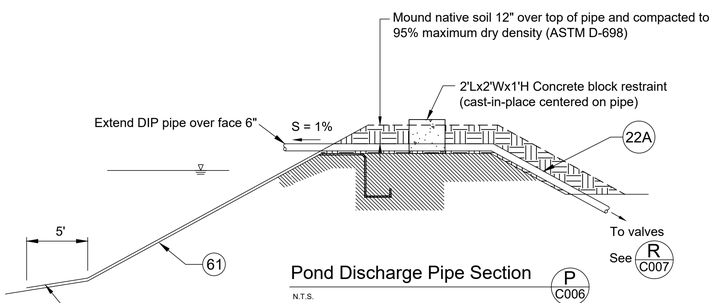

Pond Discharge Pipe Section P C006

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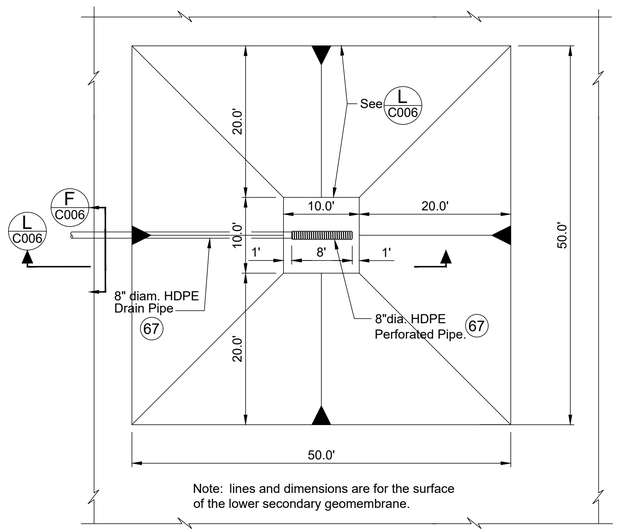


Sump Detail D C006

N.T.S.

Dig Alert
Dial toll free
1–800–227–2600
At least two days before you dig

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/17/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

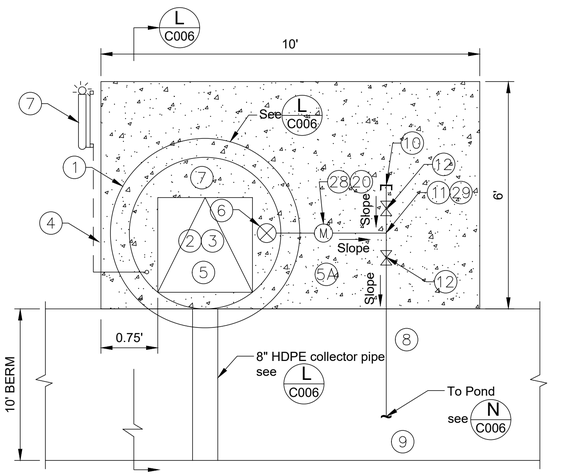
BETA SITE DETAILS (1 OF 2)

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

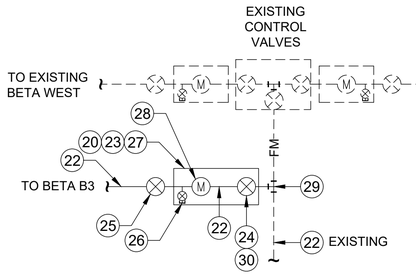
PLAN NO: C006
SHEETS: 7 SHEET NO: 6
SCALE:

ANSI D



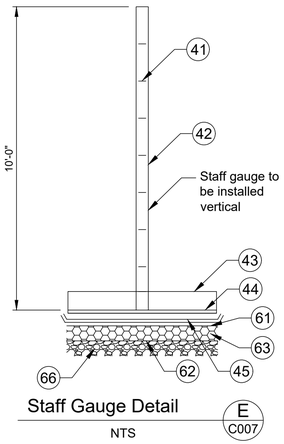
LCRS Collection Manhole and Concrete Pad Detail — M C007

NTS



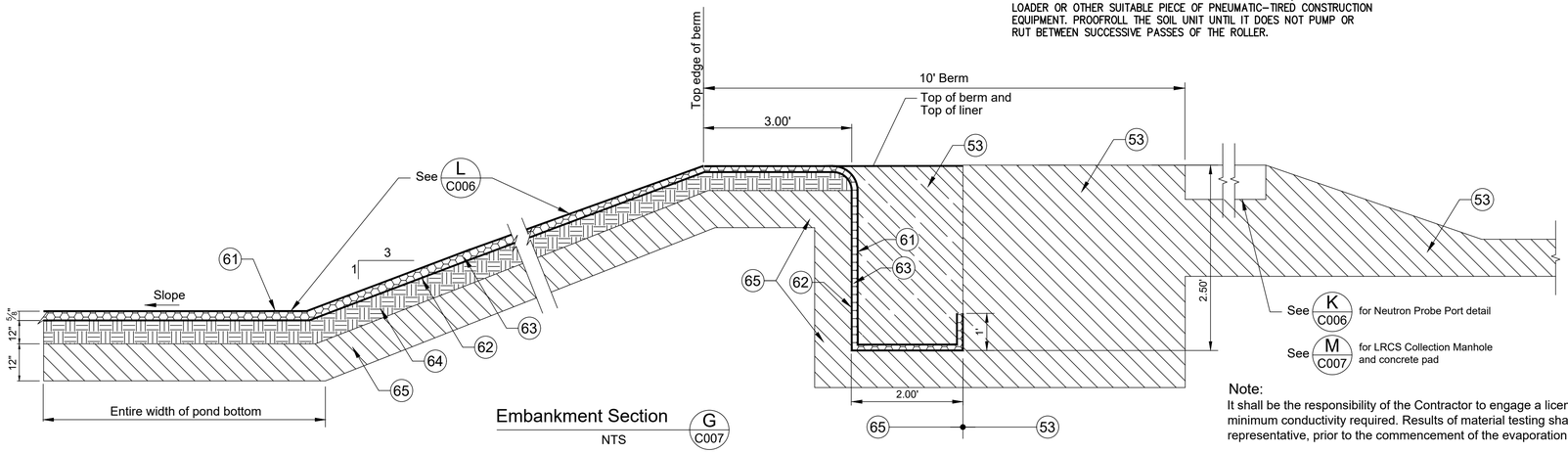
Pond Flow Control Valves Detail — R C007

NTS



Staff Gauge Detail — E C007

NTS



Embankment Section — G C007

NTS

HDPE Liner Specification - Conductive Liner

Product Specifications *These product specifications meet or exceed GRI GM13.*

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE 40 mil	MINIMUM AVERAGE VALUE 60 mil
Thickness, (minimum average) mil (mm) Lowest individual reading (-10%)	ASTM D 5199	every roll	40 (1.00) 36 (0.91)	60 (1.50) 54 (1.40)
Density, g/cm³	ASTM D 1505	200,000 lb	0.94	0.94
Tensile Properties (each direction) Strength at Break, lb/in-width (N/mm) Strength at Yield, lb/in-width (N/mm) Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 2.0 in (51 mm) G.L. 1.3 in (33 mm)	20,000 lb	 152 (26) 84 (14) 700 13	 243 (42) 132 (23) 700 13
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	28 (124)	42 (186)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	85 (378)	125 (556)
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note(1)	Note(1)
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	1,000	1,000
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140	>140

Note 1: 9 of 10 views shall be Category 1 or 2.

CONSTRUCTION NOTES

61 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) UPPER LINER. UPPER LINER TO BE 60 MIL, TEXTURED UPPER SURFACE AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

62 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) LOWER LINER. LOWER LINER TO BE 40 MIL AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

63 INSTALL AN INTERSTITIAL LEAK COLLECTION GEONET MATERIAL BETWEEN THE UPPER AND LOWER LINERS. THE GEONET WILL BE A MINIMUM OF 200 MIL WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AT A SLOPE OF 1% UNDER A HEAD OF 1 FOOT. GEONET SHALL BE HYPERNET AS MANUFACTURED BY GSE OR EQUIVALENT. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

64 INSTALL A BASE LAYER CONSISTING OF 12–INCHES OF ONSITE SOIL BELOW THE LOWER LINER. THE BASE LAYER WILL BE CONSTRUCTED TO CONTAIN NO PARTICLES LARGER THAN ONE INCH. BASE LAYER SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY PER ASTM D1557. PROOFROLL THE BASE TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT MATERIAL AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND FILL AS NOTED HERE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

AFTER ROUGH GRADE HAS BEEN ACHIEVED, AND PRIOR TO PLACEMENT OF THE BASE MATERIAL, PROOFROLL AND PREPARE THE EXPOSED SUBGRADE BY DISCING AND MOISTURE CONDITIONING SOIL TO OPTIMUM MOISTURE CONTENT. PERFORM PROOFROLLING TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT SUBGRADE AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACEING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND AS NOTED HERE. REMOVE CALICHE OR CEMENTED LAYERS TO 8" BELOW SUBGRADE SURFACE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNIT UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

65

CONSTRUCTION NOTES

20 UPSTREAM AND DOWNSTREAM CLEAR DISTANCE TO BE AS RECOMMENDED BY THE METER MANUFACTURER OR AS SHOWN ON C552.

21 VALVE AREA (ROAD TO POND) TO BE COVERED WITH 6" OF 3/4" ROCK ON TOP OF COMPACTED SOIL AT GRADE.

22 FORCE MAIN (FM) BY OTHERS TO BE 4" HDPE.

22A DISTRIBUTION PIPE TO BE 4" DIP. ALL FITTINGS TO BE DIP. ALL PIPES TO BE RESTRAINED.

23 WATER METER BOXES TO BE PLACED WITH TOP OF LID 2" ABOVE GRADE. EXTEND METER BOX TO TOP OF PIPE.

24 INSTALL 4" DIAMETER ISOLATION VALVE, RESILIENT, SEAT MJ X MJ, WITH SQUARE NUT OPERATOR AND SLIDING ADJUSTABLE CAST IRON VALVE BOX.

25 INSTALL 4" DIAMETER MANUAL VALVE (TO CONTROL FLOW TO EACH POND), RESILIENT SEAT, MJ X MJ, WITH SQUARE NUT OPERATOR AND SLIDING ADJUSTABLE CAST IRON VALVE BOX.

26 INSTALL 4"X 3/4" TEE AND EXTEND 3/4" SCHEDULE 80 PVC TO WITHIN 6" OF INSIDE OF TOP OF METER BOX. INSTALL 3/4" GATE VALVE, THREADED, WITH 3/4" PLUG (TEST PORT VALVE) ON END OF PIPE.

27 INSTALL CAST IRON OR CONCRETE WATER METER BOX AND LID. SIZE TO PROVIDE CLEARANCE FOR WATER METER AND TEST PORT VALVE.

28 INSTALL 2" FL X FL WATER METER. WATER METER TO BE SIZED FOR OPERATING RANGE OF 0.5 TO 160 GPM WITH ACCURACY OF 98.5% TO 101.5% AND LOSS NOT TO EXCEED 4.3 PSI AT 160 GPM IT WILL ALSO HAVE THE CAPACITY FOR MAXIMUM INTERMITTENT FLOWS OF 200 GPM. METER SHALL BE CENSUS OMNI C2 OR EQUAL.

29 INSTALL FITTINGS AS NOTED OR NEEDED (TYPICAL).

30 VAULT TO BE CONSTRUCTED AROUND VALVES.

41 6" WIDE FIBERGLASS STAFF GAUGE SECURED TO BOX BEAM. AS MANUFACTURED BY VPC OR APPROVED EQUAL. CONTRACTOR TO SUBMIT GAUGE FOR APPROVAL. MARKINGS TO BE AT 0.1 FEET INTERVALS.

42 6" X 6" X 1/4" SS316 BOX BEAM.

43 6" CONCRETE BALLAST REINFORCED WITH WWF 4X4XW1.4XW1.4 .

44 48" DIA. X 1" SS316 PLATE. WELD BOX BEAM TO PLATE.

45 TWO LAYERS OF 60 MIL HDPE LINER BETWEEN PLATE AND UPPER LINER.

53 COMPACT TO 95% OF MAXIMUM DRY DENSITY PER ASTM D698.

CONSTRUCTION NOTES

1 CONSTRUCT 4' DIA. PRECAST CONCRETE MANHOLE PER ASTM C478. MANHOLE INVERT TO HAVE A 6" DEEP SUMP. CONSTRUCT FLOOR TO SLOPE TO SUMP.

2 IMBED A HALLIDAY SERIES WIR 3030 ALUMINUM, 30" X 30" CLEAR OPENING SINGLE DOOR ACCESS HATCH IN THE FLAT CONCRETE TOP. PROVIDE DRAIN FROM CHANNEL FRAME TO SIDE OF CONCRETE PAD. INSTALL DOOR SO IT OPENS TOWARD THE POND AS NOTED ON SECTION L.

3 PROVIDE AND INSTALL A HALLIDAY PROTECTIVE GRATING PANEL ACCESS HATCH.

4 CONSTRUCT A 6'–0" X 10'–0" X 6" CONCRETE PAD AROUND THE MANHOLE. INSTALL #4 @ 12" EACH WAY IN CONCRETE PAD. COMPACT NATIVE SOIL UNDER COLLECTION MANHOLE SLAB TO 95% MAXIMUM DENSITY AS PER ASTM D698.

5 INSTALL LEACHATE PUMP, PIPING, POWER AND CONTROLS AS REQUIRED TO PUMP LEACHATE BACK TO POND. PUMP AND APPURTENANCES TO BE SIZED FOR ALERT LEVEL 2 (AL2) AS DETERMINED BY LINER TESTS AND THE CEC. SIZE PUMP FOR A MINIMUM FLOW OF 25 GPM PENDING RESULTS OF LINER TESTS. PUMP TO BE HARD WIRED TO CONTROL PANEL ADJACENT TO THE CONCRETE SLAB. CONTROLS TO HAVE MAIN POWER ON/OFF SWITCH, BREAKER, AUTO/ON/OFF, RUNNING TIME METER, AND OVERLOAD RED LIGHT. CONTROLS TO BE MOUNTED IN POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB.

5A DO NOT INSTALL CHECK VALVE AT PUMP. SLOPE PIPE SO THAT IT DRAINS BACK TO MANHOLE OR TO POND SO WATER WILL NOT STAND IN PIPE.

6 6" BLOCKOUT IN MH TOP FOR DISCHARGE PIPE.

7 INSTALL AN ELECTRIC LEAK SENSOR TO SENSE WATER IN THE COLLECTION MANHOLE AND TO START THE PUMP. SENSOR TO ALSO START A GREEN BLINKING LIGHT TO SIGNAL TO OPERATORS THAT THE COLLECTION MANHOLE HAS WATER AND THE PUMP HAS STARTED. WHEN PUMP STOPS, WATER SENSOR TO SEND A SIGNAL TO STOP GREEN LIGHT FROM BLINKING. LIGHT AND SENSOR CONTROLS TO BE MOUNTED ON POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB. SENSOR LOCATION TO BE VERTICALLY ADJUSTABLE.

8 INSTALL 2" DISCHARGE PIPE FROM THE PUMP TO THE POND. THE PUMP SHALL BE PIPED AND VALVED TO DISCHARGE BACK INTO THE SURFACE IMPOUNDMENT OR TO A TANKER TRUCK. THE DISCHARGE PIPE SHALL BE EQUIPPED WITH A RECORDING FLOW METER SHOWING THE PUMP TOTAL FLOW IN GALLONS AND INSTANTANEOUS FLOW RATES IN GPM.

9 INSTALL POND DISCHARGE AT DISCHARGE PIPE AS PER POND DISCHARGE PIPE DETAIL.

10 INSTALL FLANGED CONNECTION FOR TANKER TRUCK. CONTRACTOR TO COORDINATE WITH OWNER FOR ADDITIONAL SPECIAL FITTINGS REQUIRED BY TANKER TRUCKS TO CONNECT TO PIPE.

11 PROVIDE CRADLE TYPE PIPE SUPPORTS ANCHORED TO CONCRETE TO SUPPORT PIPE, METER AND VALVES 12" ABOVE CONCRETE.

12 INSTALL 2" DIAMETER NIBCO GATE VALVE WITH HANDWHEEL OPERATOR.

Dig Alert
Dial toll free
1–800–227–2600
At least two days before you dig

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/17/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - BETA POND B3

BETA SITE DETAILS (2 OF 2)

Note:
It shall be the responsibility of the Contractor to engage a licensed soil testing facility to ensure the minimum conductivity required. Results of material testing shall be approved by the Owner or Owner's representative, prior to the commencement of the evaporation pond construction.

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C007
SHEETS: 7 SHEET NO: 7
SCALE:

ANSI D

10.3 Technical Specifications

MOJAVE SOLAR PROJECT
EVAPORATION PONDS ALPHA AND BETA

TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

SECTION 01300
SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Health and Safety Plan.

C. Construction progress schedule.

D. Work Plan.

E. Proposed products list.

F. Shop drawings.

G. Product data.

H. Soil and aggregate samples.

I. Manufacturer's installation instructions.

J. Manufacturers' certificates.

K. Survey equipment certification.

1.2 RELATED SECTIONS

A. Section 01400 - Quality Control and Quality Assurance: Manufacturers' field services and reports.

1.3 SUBMITTAL PROCEDURES

A. CONTRACTOR shall submit a submittal register in duplicate or electronically within 10 days after Notice of Award and prior to preconstruction meeting. The submittal register shall identify all submittal requirements contained in the plans and specifications, with references to the plan or specification numbers.

B. Transmit each submittal with a transmittal form. Provide two copies of each submittal or submit electronically.

C. Sequentially number the transmittal form. For revised submittals add an alphabetic suffix to the original number.

D. Schedule submittals to expedite the Project and deliver in the time frame specified. Coordinate submission of related items.

E. Allow 10 days review time for each submittal excluding delivery time to and from the CONTRACTOR.

F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

G. If necessary, revise and resubmit, and identify all changes made since previous submission.

1.4 HEALTH & SAFETY PLAN

A. The CONTRACTOR shall submit to the OWNER within 10 days following Notice of Award and prior to pre-construction meeting a site-specific Health & Safety Plan. The plan shall include all safety actions and measures to be implemented during Work in order to minimize the risk of occupational injuries and illnesses.

B. The OWNER shall review the Health and Safety Plan and shall have the right to require the CONTRACTOR to amend it if necessary. The CONTRACTOR shall make the recommended corrections and resubmit to the OWNER for review and final acceptance. The CONTRACTOR shall under no circumstances commence work prior to the OWNER's full acceptance of the plan.

C. Review and acceptance of the Health & Safety Plan by the OWNER shall not in any way impart liability on the OWNER. The CONTRACTOR is solely responsible for his safety plan and its implementation.

1.5 CONSTRUCTION PROGRESS SCHEDULES

A. CONTRACTOR shall submit initial schedule in duplicate within 10 days after date of Notice of Award and prior to the preconstruction meeting. The initial schedule, after approval by OWNER, will represent the project target schedule. All subsequent schedule revisions must detail the initial target schedule.

B. Revise and resubmit as requested, but no less than every 7 calendar days.

C. Update progress schedules weekly and, if greater detail is needed, present a two week "look ahead" schedule. The CONTRACTOR shall present updated schedules at weekly meetings.

D. Submit a computer-generated graphic-type schedule with a separate line for each item of Work or operation identifying first workday of each week.

F. Indicate submittal dates and review periods required for shop drawings, product data, samples, and product delivery dates, including those furnished by OWNER.

G. Indicate surveys for layout, as-builts, and measurement for payment.

1.6 WORK PLAN

A. Submit when specified.

B Describe personnel, equipment, and procedures required to accomplish specified items of work.

1.7 PROPOSED PRODUCTS LIST

A. Within 10 days after date of Notice to Proceed, and prior to preconstruction meeting submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.8 SHOP DRAWINGS

A. Shop drawings shall be submitted as required in individual specifications sections. Shop drawings may include the following:

1. Soil Placement sequence drawings and procedures,

2. Geosynthetic panel layouts.

1.9 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified in individual specification sections, submit three copies of printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing to OWNER.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.10 MANUFACTURER CERTIFICATES

A. When specified in individual specification sections, submit manufacturer's certification in specified quantities.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, certifications, and quality control testing.

C. Certificates must be specific to material or product, delivered to the site.

1.11 SURVEY EQUIPMENT CALIBRATIONS

A. Provide certificates of calibration for all survey equipment used during the project.

B. Submit calibrations to OWNER 5 days prior to putting equipment into use.

C. Re-calibrate as recommended by equipment manufacturer, then re-submit.

1.12 CORRESPONDENCE

A. OWNER will provide a correspondence matrix identifying requirements for submitting and sharing correspondence among the parties involved in the project.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

****END OF SECTION 01300****

SECTION 01410
QUALITY ASSURANCE TESTING, QUALITY CONTROL TESTING, AND CERTIFICATES OF COMPLIANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Acceptance testing by OWNER (Construction Quality Assurance [CQA] testing).

B. Control testing by CONTRACTOR.

C. Certificates of compliance.

1.2 RELATED SECTIONS

A. Section 01300 - Submittals

1.3 SOURCE OF MATERIALS

A. CONTRACTOR must notify OWNER in writing of the sources from which it proposes to obtain material requiring OWNER approval, certification, or quality assurance testing. Such notification must be made as soon as possible after award of Contract but no later than 10 days after receipt of the Notice to Proceed.

1.4 CONSTRUCTION QUALITY ASSURANCE TESTING

A. Construction quality assurance (CQA) testing is the testing of materials, before their inclusion in the work, and materials and workmanship, after their inclusion in the work.

B. CQA testing will be performed by the OWNER at the OWNER's expense as a basis for acceptance of the completed work.

C. OWNER will perform CQA testing in accordance with the CQA Manual. However, OWNER reserves the option to perform additional CQA testing at any time to determine conformance of the materials and workmanship with the Contract Documents.

D. CQA testing performed by the OWNER does not relieve the CONTRACTOR or the Manufacturer of materials produced for the CONTRACTOR of the obligation to perform and document quality control testing of materials and workmanship.

1.5 CONSTRUCTION QUALITY CONTROL TESTING

A. Construction Quality Control (CQC) testing is the testing of materials performed by the material supplier before their delivery or during construction, such as geomembrane manufacturing, geomembrane seam testing, and such other tests as are specified in the various sections of the Specifications to ensure compliance

with the Contract Documents. CONTRACTOR must assume full responsibility for quality control testing and give sufficient notice to OWNER to permit OWNER to witness the tests. Control testing will be at the expense of CONTRACTOR and where specifically required, must be performed by an independent testing firm.

1.6 CERTIFICATES OF COMPLIANCE

A. CONTRACTOR may use certificates of compliance for certain materials and products in lieu of the specified sampling and testing procedures. However, certificates of compliance will not be accepted for any geosynthetic materials testing. Submit certificates required to demonstrate proof of compliance of materials with specification requirements in duplicate with each lot of material delivered to the Work site or prior to delivery as required by the Contract. The lots so certified must be clearly identified by the certificate. Certificates must be signed by an authorized representative of the producer or manufacturer and state that the material complies in all respects with the requirements of the Contract Documents. In the case of multiple shipments, each shipment must be accompanied or preceded by a Certificate of Compliance.

B. The Certificate of Compliance must be accompanied by a certified copy of the test results or state that such test results are on file with the producer or manufacturer and must be furnished to OWNER on request. The certificate must give the information specified for samples in Section 01300, the name and address of the organization performing the tests, the date of the tests, the quantity of material shipped, and a description of material.

C. Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance does not relieve CONTRACTOR of responsibility for incorporating material in the Work which conforms to the requirements of the Contract and any such material not conforming to such requirements will be subject to rejection, whether in place or not.

D. OWNER reserves the right to refuse the use of certain materials on the basis of a Certificate of Compliance.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

****END OF SECTION 01410****

SECTION 02120

PREPARATION OF SUBGRADE

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This section covers the work necessary for the preparation of subgrade.

B. This work requires close coordination between the Earthwork Contractor and the Geosynthetics Contractor. The Earthwork Contractor shall meet the requirements of these Specifications and of the Geosynthetics Contractor, as approved by the Construction Quality Assurance (CQA) Engineer and the Design Engineer.

1.2 RELATED SECTIONS

A. Section 02200 - Earthwork

1.3 REFERENCES

A. Construction Quality Assurance Plan (CQA Plan)

1.4 DEFINITIONS

A. Subgrade shall be considered as those areas and surfaces upon which the Geosynthetics Contractor shall install geosynthetic materials.

PART 2 - PRODUCTS

2.1 EQUIPMENT

Furnish all necessary equipment required to accomplish the excavating, shaping, grading, rolling, and compaction specified herein.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Construct material limits within a tolerance of ±0.5 foot for horizontal state plane coordinates and elevations to ±0.1 foot.

3.2 FINAL GEOSYNTHETIC SUBGRADE SURFACE

A. The surface of the final subgrade in areas to receive geosynthetics shall be smooth, free from holes, or depressions more than $^1/_2$ inch deep and protrusions extending above the surface more than $^1/_2$ inch. Roll the finished surface of the subgrade with a smooth steel drum roller or rubber-tired roller to eliminate tire or

roller marks and provide a smooth, dense surface. Final surface of the subgrade shall be prepared to the satisfaction of the CQA Engineer and the Geosynthetics Contractor.

3.3 PROTECTION OF SUBGRADE

A. After preparing the subgrade as specified above, all unnecessary traffic shall be kept off the subgrade. Should it be necessary to haul over the prepared subgrade, the Earthwork Contractor shall drag and roll the traveled way as frequently as necessary, to remove ruts, cuts, and breaks in the surface. All cuts, ruts, and breaks in the subgrade surface that are not removed by the above operations shall be rolled to eliminate protrusions greater than ½ inch in areas of geosynthetic material installation.

B. Continued use of sections of prepared subgrade for hauling, so as to cut up or deform it from the true cross-section, shall not be permitted. The Earthwork Contractor shall protect the prepared subgrade from all on-site traffic.

C. The subgrade shall be maintained in the finished condition until the HDPE geomembrane is installed.

D. The Earthwork Contractor is responsible for the protection of the subgrade during wet weather. The cost of subgrade protection during wet weather shall be included in the bid item for Preparation of Subgrade. Any additional work required to prepare the subgrade prior to placement of the liner system shall be performed by the Earthwork Contractor and no additional compensation shall be allowed.

****END OF SECTION 02120****

SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.1 SCOPE OF WORK

A. This section covers the earthwork necessary to support the construction of the liner extension berm, including liner grading (excavation and fill), and anchor trenches.

B. The work shall consist of performing all operations necessary to excavate materials, construct engineered fills, and backfill trenches regardless of existing soil character and subsurface conditions.

C. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

1.2 RELATED SECTIONS

A. Section 01300 – Submittals

B. Section 02120 – Preparation of Subgrade

C. Section 02245 – Geotextile

D. Section 02778 – Geomembrane

1.3 REFERENCES

A. Construction Quality Assurance Plan

B. Hushmand Associates, Inc (HAI), Mojave Solar Project Evaporation Ponds – Alpha 3 and Beta 3 Design Plans, November 2023

C. ASTM D1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))

D. ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

E. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.4 DEFINITIONS

1. Construction Quality Assurance (CQA) Plan: Refers to a program of activities which shall provide adequate confidence that materials and workmanship meet

the requirements of the Contract and fulfill the projects objectives. Quality Assurance includes quality control tests and procedures.

2. Quality Control: Refers to those activities that verify that the materials and workmanship have substantially met the requirements of the Project Documents.

3. Classification System: Unified Soil Classification System (ASTM D2487).

4. Compaction: The process of increasing the density or unit weight of soil by rolling, tamping, vibrating, or other mechanical means approved by the Design Engineer and/or CQA Engineer.

5. Compactor Pass: A pass is defined as one trip of the compacting equipment over the lift and back to the starting point by a single drum roller or one trip across the lift surface if the compacting equipment has front and back (dual) compacting rollers.

6. Engineered Fill: Soils meeting the characteristics required by this Section, placed, wetted, and compacted to the required specifications.

7. Optimum Moisture Content: Moisture content corresponding to maximum dry density as determined by ASTM D1557.

8. Scarified and compacted subgrade: The ground surface after clearing, grubbing, stripping, excavation, scarification, removal of soil particles not meeting specifications, and compaction.

1.5 SAFETY

A. The Earthwork Contractor shall be solely responsible for performing earthwork in a safe manner in accordance with the requirements of the Health and Safety Plan. CONTRACTOR shall comply with all applicable California Occupational Safety and Health Administration (OSHA) regulations. Provide appropriate measures to ensure that people working in or near the project area are protected.

B. The Earthwork Contractor, and any sub-contractors, shall become familiar with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

C. Install and maintain shoring, sheeting, bracing, and sloping necessary to support the sides of excavations, to keep and to prevent any movement which may damage adjacent facilities or endanger life and health. Install and maintain shoring, sheeting, bracing, and sloping as required by OSHA and other applicable governmental regulations and agencies.

1.6 TOLERANCES

All material limits shall be constructed within a tolerance of ±0.5 foot for horizontal state plane coordinates, ±0.1-foot vertical for elevations, and +0.1 foot where dimensions or grades are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No reverse slopes shall be permitted.

PART 2 – PRODUCTS

2.1 SUBSURFACE CONDITIONS

Geotechnical explorations have been performed in the general project area. The Earthwork Contractor shall be responsible for becoming familiar with subsurface conditions at the site, whether covered in the geotechnical reports or not, and shall thoroughly understand all recommendations associated with the designed grading, presented in the Construction Documents. The Earthwork Contractor shall be responsible for performing any additional site explorations required to plan and perform the required grading work.

2.2 EQUIPMENT

A. Compaction equipment shall be of suitable mechanical type and adequate to obtain the densities specified and shall provide satisfactory breakdown of materials to form a dense fill. Flooding or jetting methods of compaction shall not be used.

B. Compaction equipment shall be operated in strict accordance with the Manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it shall deliver the Manufacturer's rated compactive effort. If inadequate relative compaction is obtained, the Earthwork Contractor shall provide larger and/or different types of additional equipment at no additional cost. Hand-operated equipment shall be capable of achieving the specified densities.

C. Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

E. On-site water source shall be made available for the Earthwork Contractor for the work included in this Section. The water source shall be identified in the pre-bid meeting at the site.

2.3 ENGINEERED FILL

Engineered Fill material shall be free from roots, organic matter, trash, debris, rocks larger than 6 inches, protuberances greater than ½-inch in areas to receive the geosynthetic liner system components, and other deleterious materials. Cobbles up to 12 inches may be used in fills that are greater than 2 feet from liner materials provided they are placed so that they are completely surrounded by compacted fill material; no nesting of cobbles shall be permitted. Engineered Fill is all soil material required to construct part of the subgrade for the liner systems, perimeter berms, and the new perimeter access road to the lines and grades shown on the drawings.

2.4 SELECT SOIL FILL

Select soil shall be on-site material suitable for construction of the soil berm, backfilling anchor trenches and any other specific use, as determined by the CQA Monitor. Select soil is material having at least 40% material smaller than ¼-inch in size, no particles larger than 3 inches, and not having any sharp, angular pieces or perishable, spongy, deleterious, or otherwise unsuitable material. Select soil fill shall be compacted in accordance with Part 3.2 of this section.

2.5 EXCAVATION

A. Excavation is all soil and rock excavated from the project site within the limits of work.

B. Excavation material not used for the designated Select Soil Fill shall be hauled to one of the stockpiles indicated by the Owner or Owner's Representative. These stockpile areas will receive general fill material, select fill, operations soils, and other soils. Stockpiles may be constructed to a maximum side slope inclination of 3.5H: 1V (horizontal: vertical), unless directed by the Owner or Owner's Representative, to the maximum capacity of the stockpile or as directed by the Owner or Owner's Representative. Erosion and sediment control measures, such as silt fences shall be placed around the stockpiles to control sediment.

PART 3 – EXECUTION

3.1 EXCAVATION

A. Perform all excavations, regardless of the type, nature, or condition of material encountered, as specified, shown, or required or implied to accomplish the construction. Transport excavated material to where it shall be placed as Engineered Fill, or to designated stockpile area, as described in Section 3.10.

B. Allow for working space, overlying materials, and finish grades as shown or required. Should trenches for pipelines be required, their dimensions shall be as shown in the Construction Drawings or at least 24 inches wider than the pipe outside diameter unless shown otherwise. Do not carry excavations deeper than the elevation shown, unless soft or wet materials are encountered. Excavation carried below the grade lines in areas of unsuitable materials shall be replaced with over excavated material compacted to at least 90% relative compaction. Cuts below grade shall be corrected by filling and compacting soil material to at least 90% relative compaction and creating a smooth transition. All overexcavations in areas of suitable materials will be filled and compacted at the Earthwork Contractor's expense.

C. Carry the bottom of trenches to the line and grade shown, or as established by the Owner or Owner's Representative. Allow for pipe thickness and for pipe bedding or special bedding when specified.

D. After completion of excavation, and prior to subgrade preparation, proof-roll the excavation surface to detect soft, wet, or loose zones. Notify the Owner or Owner's Representative prior to commencement of proof rolling. If soft, wet, or loose zones are found, excavate the soft or loose material to a depth accepted by the CQA Engineer, then fill and compact as specified for similar areas of Engineered Fills, Section 3.4.

E. Subgrade compaction shall conform to the requirements of Section 02120.

F. Perform all earthwork to the lines and grades as shown and/or established by the Owner or Owner's Representative. Shape, trim, and finish slopes to conform to the lines, grades, and cross sections shown. Make slopes free of all exposed roots and stones exceeding 3-inch diameter which are loose and liable to fall, except where geosynthetics are to be installed, which shall meet the requirements of Section 02120 Part 3.3. Neatly blend all new grading into surrounding, existing terrain. The Owner or Owner's Representative shall review finished site grading.

3.2 ENGINEERED FILLS

A. Construct Engineered Fills to lines and grades shown on the Construction Drawings. Use on-site soils for Engineered Fill materials. Deposit material in lifts not exceeding uncompacted thicknesses of 12 inches across full width of each Engineered Fill area. Particles whose greatest dimension is greater than 6 inches shall be placed so that they are completely surrounded by compacted, final material; no nesting of cobbles shall be permitted. Compact each lift to not less than 90% relative compaction as determined by ASTM D1557. At locations not meeting this density, additional work shall be required including, but not limited to moisture control, re-compaction, or material replacement.

B. Engineered fill placed within 2 feet of the liner system shall have a maximum particle size of 6 inches and a maximum protrusion height of ½ inch.

C. Compact the full width of the Engineered Fill. If pipelines are to be laid in an Engineered Fill, construct it to an elevation 2 feet above the top of proposed pipeline prior to excavating for the pipeline.

D. During all compacting operations, maintain moisture contents required for meeting the compaction requirements in each lift of fill. Maintain moisture content uniform throughout the lift. Insofar as practicable, add water to the material at the site of excavation. Supplement, if required, by sprinkling the fill.

At the time of compaction, the water content of the material shall be at ±3% of optimum moisture content.

3.3 SELECT SOIL FILL

A. Construct Select Soil Fills to lines and grades shown on the Construction Drawings. Use on-site soils for Select Soil Fill materials. Deposit material in lifts not exceeding uncompacted thicknesses of 12 inches across full width of each Select Fill area. Compact each lift to not less than 90% relative compaction as determined by ASTM D1557. At the time of compaction, the water content of the material shall be at ±3% of optimum moisture content At locations not meeting the specifications, additional work shall be required including, but not limited to moisture control, re-compaction, or material replacement.

B. Select soil fill that will have geosynthetic liner placed over it shall have a maximum protrusion height of ½ inch.

3.4 ANCHOR TRENCHES

A. Anchor trenches (as illustrated on the Construction Drawings) shall be required at the liner perimeter to secure the geosynthetic components of composite liner systems and shall have a smooth edge over which the liner enters the trench. The Earthwork Contractor shall take precautions to minimize loose soil underlying the geosynthetics in the anchor trenches. The Earthwork Contractor shall ensure that desiccation of trench soils does not occur prior to backfilling.

B. After placement of the geosynthetics in the anchor trench, place select soil in the trench and compact. This soil shall be placed in maximum 12-inch uncompacted lifts and compacted to a minimum of 90% relative compaction. At the time of compaction, the water content of the material shall be at ±3% of optimum moisture content.

3.5 FIELD QUALITY CONTROL

A. The minimum frequency and details of quality assurance testing are provided in the CQA Plan. The Earthwork Contractor shall be aware of all field quality assurance requirements and activities and shall incorporate these into the construction schedule.

B. If a defective area is discovered in the earthwork, the Owner or Owner's Representative will determine the extent and nature of the defect by performing additional tests, observations, a review of records, or other means that the Owner or Owner's Representative deems appropriate.

C. After the Owner or Owner’s Representative determines the extent and nature of a defect, the Earthwork Contractor shall correct the deficiency at their expense to the satisfaction of the Owner or Owner's Representative.