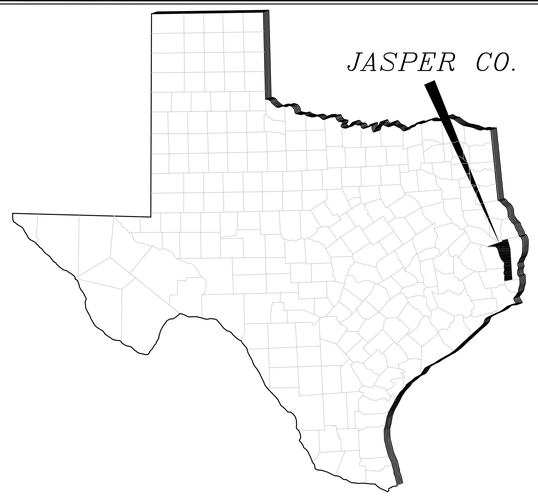
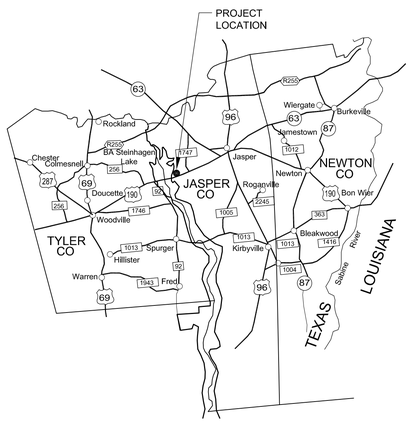


COUNTY LOCATION MAP
NTS

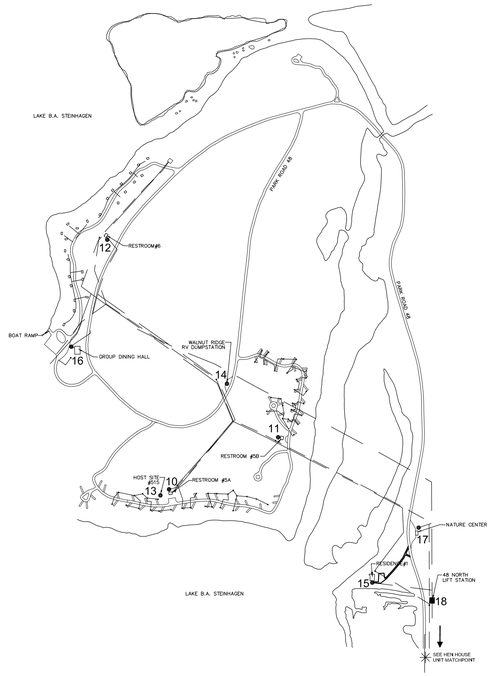
NORTH



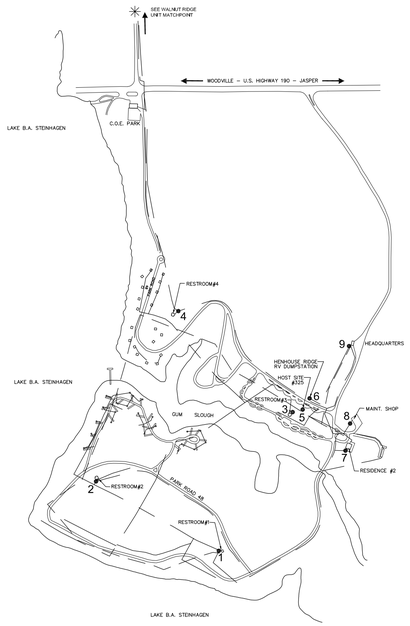
VICINITY MAP
NTS

NORTH

MARTIN DIES, JR. STATE PARK
PROJECT LOCATION



WALNUT RIDGE UNIT



HEN HOUSE RIDGE UNIT

NORTH

SITE LOCATION MAP
NOT TO SCALE

SITE ADDRESS:
Martin Dies, Jr. State Park
634 Park Road 48 South
Jasper, Texas 75951

PROJECT

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS

PROJECT NO: CC.1210232 DATE: APRIL 2020

INDEX OF DRAWINGS

BUILDING CODE SUMMARY

A. INTERNATIONAL CODE COUNCIL ADOPTIONS*

1. BUILDING CODE	INTERNATIONAL BUILDING CODE 2015
2. STRUCTURAL CODE	INTERNATIONAL BUILDING CODE 2015
3. PLUMBING CODE	INTERNATIONAL PLUMBING CODE 2015
4. MECHANICAL CODE	INTERNATIONAL MECHANICAL CODE 2015
5. GAS CODE	INTERNATIONAL FUEL GAS CODE 2015
6. RESIDENTIAL CODE	INTERNATIONAL RESIDENTIAL CODE 2015
7. EXISTING BUILDINGS	INTERNATIONAL EXISTING BUILDINGS CODE 2015

* International Fire Code omitted in lieu of TPWD's implementation of National Fire Protection Association codes. International Energy Conservation Code 2015 omitted in lieu of Energy Standard for Buildings, ASHRAE/IESNA Standard 90.1 (2013).

B. NATIONAL FIRE PROTECTION ASSOCIATION

1. ELECTRIC CODE	NATIONAL ELECTRIC CODE NFPA-70 2020
2. FIRE CODE	NFPA - 1 2015
3. LIFE SAFETY CODE	NFPA - 101 2015

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SCOPE OF WORK

PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS TO REMOVE AND REPLACE LIFT STATION PLUMBING, CONTROLS, FLOAT SWITCHES, PUMPS AND INTERNAL STRUCTURE, IN THE LIFT STATIONS WHERE AND AS SHOWN IN THE DRAWINGS AND SPECIFICATIONS INCLUDED IN THESE PLANS. THE WORK SHALL INCLUDE ALL APPROPRIATE ELECTRICAL MODIFICATIONS AS NOTED IN THE PLANS AND SPECIFICATIONS AND AS REQUIRED FOR COMPLETE AND OPERATIONAL SYSTEMS. THIS PROJECT SHALL INCLUDE THE INSTALLATION OF ALL FEATURES TO REPLACE SOME OR ALL EXISTING LIFT STATION INTERNAL MATERIALS, EQUIPMENT AND CONTROLS TO PROVIDE COMPLETE AND A FULLY FUNCTIONAL LIFT STATIONS OF IDENTICAL CAPACITY TO THAT OF LIFT STATIONS DESIGNATED IN THE PLANS, AS WELL AS ELECTRICAL MODIFICATIONS TO DESIGNATED LIFT STATIONS.

TEXAS PARKS & WILDLIFE

TEXAS PARKS AND WILDLIFE

INFRASTRUCTURE DIVISION

4200 SMITH SCHOOL ROAD · AUSTIN, TEXAS 78744-3292

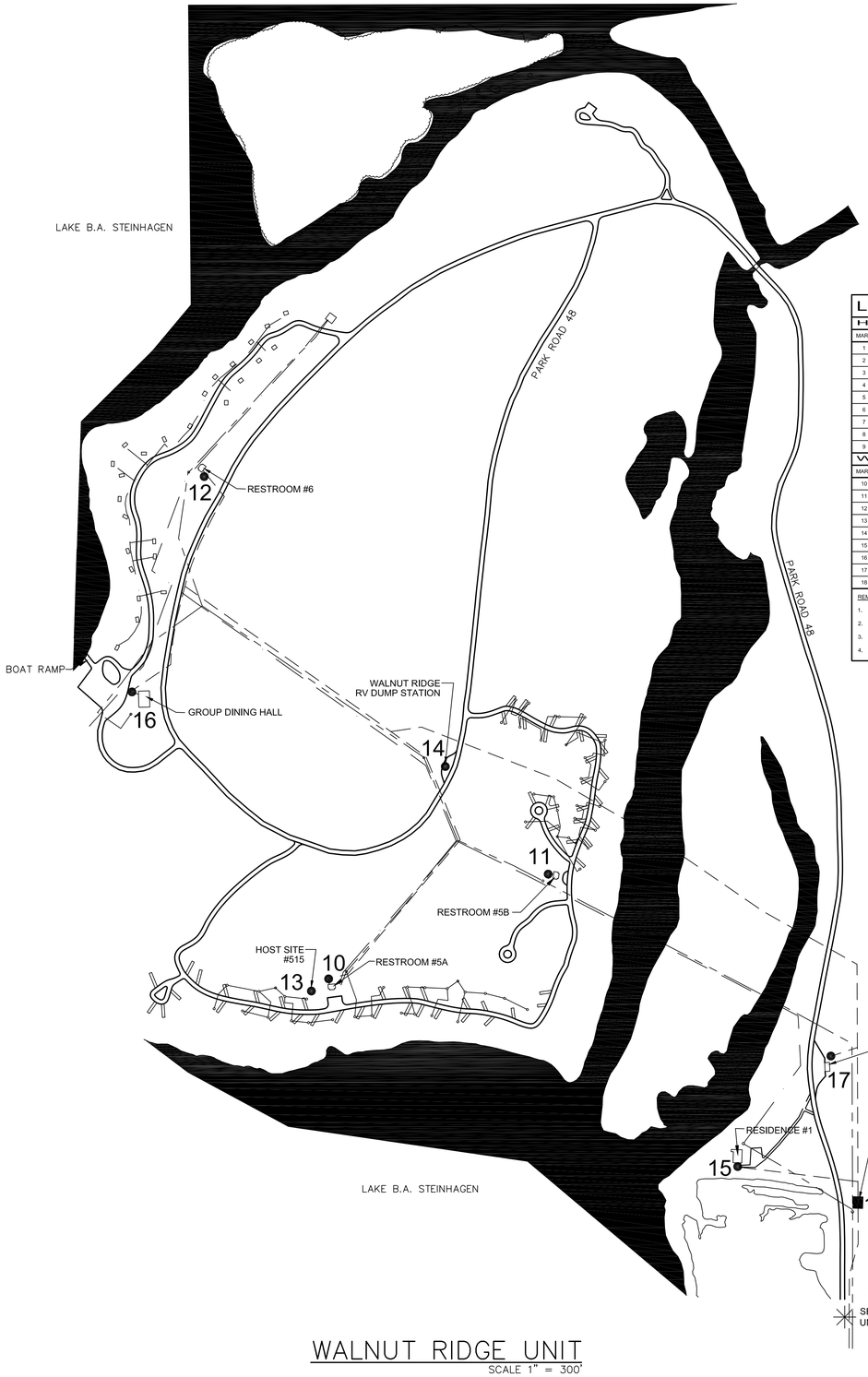
STATE OF TEXAS
KENNETH L. NEWMAN
50441
LICENSED PROFESSIONAL ENGINEER
Kenneth L. Newman, P.E.
4/03/2020

knewmanx 09/25/2020 10:02:01 AM

TEXAS PARKS & WILDLIFE
RELEASED FOR SOLICITATION
INFRASTRUCTURE DIVISION

100% CONSTRUCTION DOCUMENTS

PATH: C:\Users\knewmanx\Documents\Working Docs\Martin Dies Jr SP\CC-1210232 Lift Stations\CC1210232 Martin Dies Jr Cover Sheet - rev1.dwg



WALNUT RIDGE UNIT
SCALE 1" = 300'

LIFT STATION SCOPE OF WORK

HEN HOUSE RIDGE UNIT

MARK	SERVICE	SIMPLEX / DUPLEX	SCOPE OF WORK
1	RESTROOM #1	DUPLEX	COMPLETE RENOVATION
2	RESTROOM #2	DUPLEX	MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION ONLY
3	RESTROOM #3	DUPLEX	MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION ONLY
4	RESTROOM #4	DUPLEX	COMPLETE RENOVATION
5	HOST SITE #325	DUPLEX	COMPLETE RENOVATION
6	RV DUMP STATION	DUPLEX	NEW SUMP, TRANSFER SWITCH AND GEN. CONNX. ONLY
7	RESIDENCE #2	SIMPLEX	COMPLETE RENOVATION
8	MAINTENANCE SHOP	DUPLEX	REPLACE VALVES, AIR VENT AND PIPING IN AND AROUND VALVE VAULT
9	HEADQUARTERS	DUPLEX	REPLACE VALVES, AIR VENT AND PIPING IN AND AROUND VALVE VAULT

WALNUT RIDGE UNIT

MARK	SERVICE	SIMPLEX / DUPLEX	SCOPE OF WORK
10	RESTROOM #5A	DUPLEX	COMPLETE RENOVATION
11	RESTROOM #5B	DUPLEX	MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION ONLY
12	RESTROOM #6	DUPLEX	COMPLETE RENOVATION
13	HOST SITE #515	SIMPLEX	COMPLETE RENOVATION
14	RV DUMP STATION	DUPLEX	NEW SUMP, TRANSFER SWITCH AND GEN. CONNX. ONLY
15	RESIDENCE #1	SIMPLEX	COMPLETE RENOVATION
16	GROUP DINING HALL	DUPLEX	COMPLETE RENOVATION
17	NATURE CENTER	DUPLEX	COMPLETE RENOVATION
18	48 NORTH	SHP DUPLEX	REPLACE VALVES, AIR VENT AND PIPING IN AND AROUND VALVE VAULT

REMARKS:

1. "COMPLETE RENOVATION" SHALL BE AS DEFINED AS THE DEMOLITION AND CONSTRUCTION SHOWN ON SHEETS D-1, C-1, E-1 AND THE SPECIFICATIONS ON SHEETS SP-1 AND SP-2.
2. "MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION ONLY" SHALL BE AS DEFINED IN DETAILS ON SHEET E-1, AND AS SPECIFIED ON SHEETS SP-1 AND SP-2.
3. ALL PUMPS IN ALL LIFT STATIONS ARE 2 HORSEPOWER (EXCEPT AS NOTED FOR #18 ABOVE). PUMPS SHALL BE REPLACED IN KIND ONLY AS DESCRIBED ELSEWHERE IN THESE DOCUMENTS.
4. REQUIRED WORK IS DESCRIBED MORE SPECIFICALLY IN DETAILS ON DRAWING SHEETS C2 AND C3.

NORTH

HEN HOUSE RIDGE UNIT
SCALE 1" = 300'

300 0 300 600
SCALE: 1" = 300'

Legend
- Electrical Line
- Sanitary Sewer
- Water Line
- Underground Electrical Line
- Lift Stations

1 UTILITY SITE AND CONSTRUCTION LOCATION PLAN
SCALE: 1" = 300'

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/08/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE AND CONSTRUCTION LOCATION PLAN

SHEET NUMBER
G1
OF 9
CC10232

GENERAL NOTES:

1. THE FEATURES OF THE PLANS ARE SHOWN IN APPROXIMATE DIMENSIONS AND LOCATIONS. THE ACTUAL FEATURES SHOWN MAY NOT BE DIMENSIONED EXACTLY AS INDICATED. CONTRACTOR SHALL VERIFY ALL CRITICAL DIMENSIONS ON SITE AND SHALL NOT SCALE FROM PLAN.
2. THE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC BY THEIR NATURE, AND ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE, DUCT OR CONDUIT IN ITS EXACT LOCATION. FEATURES AND COMPONENTS NOT SHOWN ARE SUBJECT TO THE REQUIREMENTS OF STANDARDS REFERENCED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL COORDINATE THE VARIOUS TRADES IN ORDER TO AVOID INTERFERENCE BETWEEN THE VARIOUS SEGMENTS OF THE PROJECT.
3. ALL WORK SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO THE BUILDING OR STRUCTURE LINES UNLESS NOTED OTHERWISE.
4. REFER TO SPECIFICATIONS AND SPECIAL NOTES FOR ADDITIONAL INFORMATION.
5. WORK AT THE LIFT STATIONS SHALL MINIMIZE THE REQUIREMENT FOR FACILITIES TO BE OUT OF SERVICE. TEMPORARY ALTERNATE ARRANGEMENTS WILL BE SCHEDULED FOR THE FACILITIES TO BE OUT OF SERVICE. KEEP IN MIND THAT OUTAGES WILL LIKELY INCONVENIENCE THE AVAILABILITY OF THE PARK TO THE PUBLIC.
6. ALL WORK THAT REQUIRES THE SHUT DOWN OF LIFT STATIONS OR OTHER EQUIPMENT SHALL BE SCHEDULED WITH THE APPROVAL OF THE PARK STAFF AS INDICATED IN THE DRAWINGS AND NOTES.
7. NOTE THAT WORK AT EACH LIFT STATION MAY REQUIRE REFERENCE TO ONLY PORTIONS OF THE DETAILS AND SPECIFICATIONS INCLUDED ON THIS SHEET. CONTRACTOR SHALL CONSULT WITH INSPECTOR OR ENGINEER IF QUESTIONS ARISE.
8. CONSTRUCTION CONTRACTOR SHALL PROTECT ALL PROJECT WORK AND EXCAVATIONS FROM ACCIDENTAL INJURY TO THE WORKERS AND THE PUBLIC USING BRIGHT SAFETY COLORED BARRICADES AND NET FENCING, AS RECOMMENDED OR REQUIRED BY OSHA OR STATE SAFETY ORDINANCES.
9. OWNER SHALL HAVE THE OPTION TO RETAIN ANY MATERIALS REMOVED UNDER THIS CONTRACT. DO NOT REMOVE ANY MATERIALS FROM PARK UNTIL OWNER RELEASES IT. CONTRACTOR SHALL DISPOSE OF ANY UNWANTED MATERIALS OFFSITE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL ORDINANCES AND REQUIREMENTS.
10. "N.I.C." = "NOT IN CONTRACT"

KEYED NOTES: "⬡"

1. REMOVE PUMPS, PIPING, VALVES, PUMP RAIL SYSTEMS, ALL STRUCTURAL SUPPORT MATERIALS, AND ELECTRICAL CONDUIT AND WIRING FROM EXISTING SUMP, UNLESS NOTED OTHERWISE. NOTE THAT SOME DUPLEX SUMPS MAY DIFFER FROM DETAIL WITH EXCESSIVE CORROSION OF STRUCTURAL SUPPORTS, BROKEN/DISPLACED PIPING AND PUMPS, MISSING PUMPS, OR DIFFERENT PIPING CONFIGURATIONS. ONLY EXISTING SUMP, GRAVITY DRAINS INTO SUMPS, AND SUMP PENETRATIONS SHALL REMAIN AFTER DEMOLITION, UNLESS NOTED OTHERWISE IN THE DETAILS ON SHEETS C2 OR C3. SEE ALSO KEYED NOTE #2.
2. REMOVE EXISTING CONTROL FLOAT SWITCHES AND WIRING FROM SUMP. PRESERVE STAINLESS STEEL SUPPORT FOR CONTROL FLOAT SWITCHES FOR REUSE WITH NEW FLOAT SWITCHES, ONLY IF THE SUPPORT MATERIAL AND FASTENERS ARE IN PRISTINE CONDITION. SUPPORT RACK SHALL BE REPLACED IF IT IS CORRODED OR BROKEN. ALL NEW FASTENERS AND ANCHORS SHALL BE STAINLESS STEEL.
3. REMOVE ALL EXISTING PIPING BETWEEN SUMP AND VALVE VAULT. REMOVE ALL PIPING WITHIN VALVE VAULT AS WELL AS CHECK VALVES, GATE VALVES AND AIR RELEASE VALVE. PRESERVE A PORTION OF EXISTING PVC FORCE MAIN PIPING FOR CONNECTION TO NEW PIPING.
4. AFTER DEMOLITION OF ALL COMPONENTS FROM SUMPS AS INDICATED, CLEAN SUMP OF ALL DEBRIS, LOOSE MATERIALS AND BIOLOGICAL GROWTH. REMOVE ALL LIQUIDS AND ALLOW SUMP TO DRY COMPLETELY. REPAIR ANY AND ALL CRACKS WITH ORGANIC BASED SEALANTS. INSTALL ALL NEW PIPING (SCHEDULE 80 PVC) AND CONDUIT (ONLY PVC CONDUIT IN SUMP), BUT BEFORE THE INSTALLATION OF ANY EQUIPMENT, STRUCTURE, OR CONTROLS, SEAL PIPING AND CONDUIT INTO NEW AND EXISTING PENETRATIONS. PROVIDE NEW COATING TO ENTIRE SUMP, TO PREVENT SEEPAGE.
5. NEW PUMPS SHALL BE SIZED TO EQUAL THE FUNCTION AND CAPACITY OF THE EXISTING PUMPS. THE EXISTING PUMPS IN ALL SUMPS INCLUDED IN THIS WORK ARE 2 H.P. HYDROMATIC MODEL #HPG200M2.
6. REMOVE EXISTING CONDUIT, AND INSTALL TWO NEW 2" RIGID (PVC IN SUMP) CONDUITS, EXTENDED TO THE NEW CONTROL PANEL. (SEE ELECTRICAL PLAN E1 FOR ADDITIONAL REQUIREMENTS.) REUSE EXISTING PENETRATIONS, AND PROVIDE NEW PENETRATION(S) IF NECESSARY. SEAL THE NEW CONDUIT INTO PENETRATIONS USING LINKSEAL (OR APPROVED EQUAL) AND CURE-IN-PLACE WATERPROOF SEALANT. PLUG AND SEAL UNUSED PENETRATIONS.
7. INSTALL NEW STRUCTURE, PUMP MOUNTS, BOTTOM ANCHORS AND CONTROLS, USING ONLY STAINLESS STEEL FASTENERS AND CONCRETE ANCHORS. ALL NEW PIPING SHALL BE SCHEDULE 80 PVC.
8. INSTALL NEW SCHEDULE 80 PVC PIPING, VALVES AND FITTINGS IN THE VALVE VAULT. ALSO REPLACE ALL PIPING BETWEEN THE PUMP SUMPS AND VALVE VAULTS WITH SCHEDULE 80 PVC PIPE AND FITTINGS.
9. DIMENSIONS LISTED ARE CLOSE, BUT APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL EXISTING DIMENSIONS ON SITE.
10. APPROXIMATE FLOAT LEVELS ARE SHOWN. ADJUST ALL LEVELS TO FUNCTION PROPERLY FOR THE APPLICATION.
11. FOR THOSE LIFT STATIONS INVOLVING THE REPLACEMENT OF VALVES AND COMPONENTS, THE COMPLETED INSTALLATION SHALL INCLUDE THE ADDITION OR REPLACEMENT OF A PVC GRAVITY BACKFLOW PREVENTER (FLAP TYPE CHECK VALVE OR EQUIVALENT) TO PREVENT THE FLOW OF LIQUID AND GASES FROM THE SUMP TO THE VALVE VAULT.
12. INSTALL (OR PRESERVE/MODIFY EXISTING) VENT FROM SUMP (2-1/2" PVC PIPE, SEALED INTO WALL), FROM SUMP TO CONTROL RACK. SUPPORT ON STRUCTURE OF RACK UP TO 8 FEET ABOVE GRADE. CORE PENETRATION INTO SUMP 90R USE AN EXISTING PENETRATION) AND SEAL WITH LINK-SEAL OR APPROVED EQUAL. PROVIDE GOOSENECK OF 2 90° FITTINGS AND A SHORT NIPPLE AT THE TOP OF THE VENT. INSTALL STAINLESS STEEL SCREEN AND CLAMP OVER OPENING AT THE END OF THE DOWNWARD FACING GOOSENECK.
13. STAINLESS STEEL FLOAT CORD RACK (REPLACES EXISTING RACK IF CONTROLS ARE REPLACED). REPLACE IF DAMAGED. ALL NEW MATERIALS, FASTENERS AND ANCHORS SHALL BE STAINLESS STEEL.

GENERAL PROJECT SCOPE AND INTENT

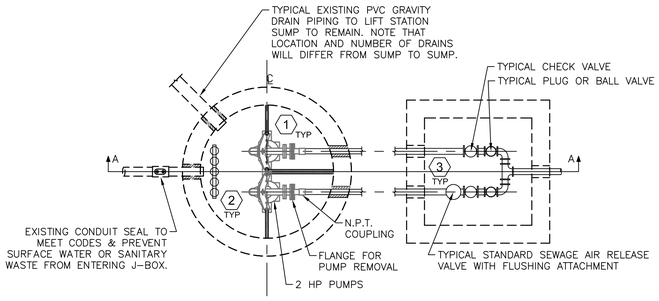
THE INTENT OF THIS PROJECT IS TO REPLACE LIFT STATION EQUIPMENT, CONTROL PANELS, AND/OR PERFORM OTHER ELECTRICAL AND/OR PLUMBING WORK AT EIGHTEEN OF THE LIFT STATIONS IN THE PARK. AS SHOWN ON THE DETAILS ON SHEETS C2 AND C3 THERE WILL LIKELY BE DIFFERING SCOPES OF WORK AT INDIVIDUAL LIFT STATIONS AS INDICATED ON SHEET G1. REFER TO DETAILS ON SHEETS C2 AND C3 FOR SPECIFIC REQUIREMENTS. IN ADDITION, THIS PROJECT WILL REQUIRE ONLY LIMITED ELECTRICAL WORK AT SEVERAL LIFT STATIONS TO PROVIDE A MANUAL TRANSFER SWITCH AND CONNECTION FOR A PORTABLE GENERATOR.

GENERAL REMOVAL NOTES

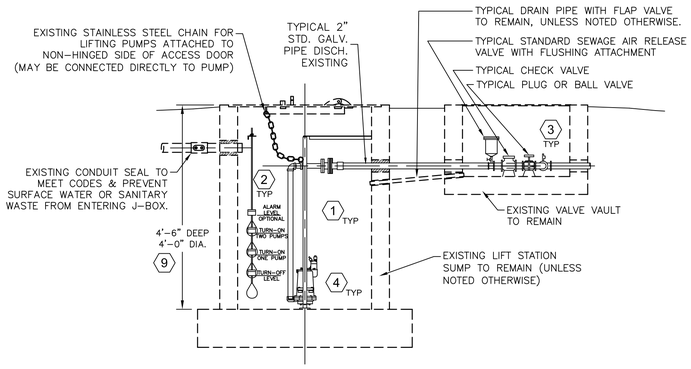
1. DETAILS ON SHEETS C2 AND C3 MAY INDICATE REQUIREMENTS TO DISCONNECT AND REMOVE THE EXISTING CONTROL PANEL AND OTHER EQUIPMENT & WIRING FROM SOME OF THE EXISTING SUPPORT RACKS AS NECESSARY TO MAKE ROOM FOR THE NEW EQUIPMENT AND OTHER ITEMS AS SHOWN ON THE DRAWINGS.
2. TO MINIMIZE THE DOWN TIME REQUIRED FOR THE FINAL CHANGE OVER WORK AT EACH LIFT STATION AND TO KEEP EACH LIFT STATION IN OPERATION FOR AS MUCH TIME AS POSSIBLE, IT MAY BE NECESSARY TO SUPPLY EXISTING CONTROL PANELS WITH TEMPORARY POWER AND EXISTING BASIN CABLES SHALL BE TEMPORARILY RE-ROUTED & RECONNECTED TO THE EXISTING CONTROL PANEL. ALSO, AN EXISTING CONTROL PANEL MAY BE REMOUNTED ON TEMPORARY SUPPORTS TO KEEP THE LIFT STATION IN OPERATION FOR AS LONG AS POSSIBLE. THIS NEED OR REQUIREMENT MAY BE NECESSARY AT LIFT STATIONS THAT SERVE CRITICAL TPWD OPERATIONAL FACILITIES SUCH AS THE HEADQUARTERS BUILDING, RESTROOMS, ETC., AND LOGISTICS SHALL BE COORDINATED THROUGH THE CONSTRUCTION MANAGER, INSPECTOR AND PARK STAFF. SHUT DOWN OF EXISTING SYSTEMS SHALL BE ARRANGED A MINIMUM OF 14 CALENDAR DAYS IN ADVANCE.

COORDINATION/SCHEDULING NOTES:

1. ALL WORK ON THIS PROJECT SHALL BE SCHEDULED AND COORDINATED WITH THE PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL.
2. DURING THIS PROJECT, MARTIN DIES, JR. STATE PARK WILL BE OPEN TO THE PUBLIC. MUCH OF THE PROJECT WORK WILL BE AROUND PUBLIC USE FACILITIES AND WILL EFFECT THE USE AND OPERATION OF THESE FACILITIES.
3. UNLESS OTHERWISE NOTED, OR ALLOWED BY THE TPWD CONSTRUCTION MANAGER OR INSPECTOR, ONLY ONE LIFT STATION AT A TIME SHALL BE OFF-LINE AT ANY TIME FOR THE CONTRACTOR TO PERFORM THE FINAL CHANGE OVER TO A NEW CONTROL PANEL AND/OR OTHER EQUIPMENT, AND THE REMOVAL AND INSTALLATION OF A NEW LIFT STATION STRUCTURE, PUMPS PIPING AND/OR VALVES. THE CONTRACTOR SHALL NOTIFY AND COORDINATE THE LENGTH OF TIME NEEDED TO COMPLETE THE RENOVATION WORK AT EACH LIFT STATION WITH PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL APPROXIMATELY 14 CALENDAR DAYS IN ADVANCE UNLESS OTHER ARRANGEMENTS ARE APPROVED BY TPWD. THE BLOCKS OF TIME NEEDED TO COMPLETE EACH LIFT STATION RENOVATION SHALL BE AGREED UPON AND SCHEDULED WITH PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL.
4. THE OUTAGE PERIODS FOR ALL LIFT STATIONS SHALL BE AS SHORT AS POSSIBLE TO MINIMIZE THE EFFECT OF WORK AT EACH OF THE FACILITIES ON THE VISITING PUBLIC.
5. THE CONTRACTOR SHALL PERFORM AS MUCH WORK AS POSSIBLE AT EACH LIFT STATION PRIOR TO TAKING THE LIFT STATION OFF-LINE FOR THE FINAL CHANGE OVER WORK OR TAKING THE LIFT STATION OFF-LINE TO REPLACE OR MODIFY POWER SUPPLY TO THE LIFT STATION. THE PRIOR WORK SHOULD INCLUDE REMOVALS, TEMPORARY WIRING, TEMPORARY SUPPORTS, RACK MODIFICATIONS, EQUIPMENT MOUNTING, INSTALLING NEW FEEDER CIRCUIT WIRING AND CONDUIT, AND ANY OTHER PRE-ASSEMBLY WORK THAT CAN BE ACCOMPLISHED WITH NO LIFT STATION OUTAGES OR SHORT DURATION OUTAGES.
6. THE CONTRACTOR SHALL NOTIFY THE PARK STAFF AND THE TPWD CONSTRUCTION MANAGER AND INSPECTOR 48 HOURS PRIOR TO ANY CHANGE IN SCHEDULED POWER OR EQUIPMENT OUTAGES NEEDED TO PERFORM THE CONTRACT WORK.



PLAN VIEW



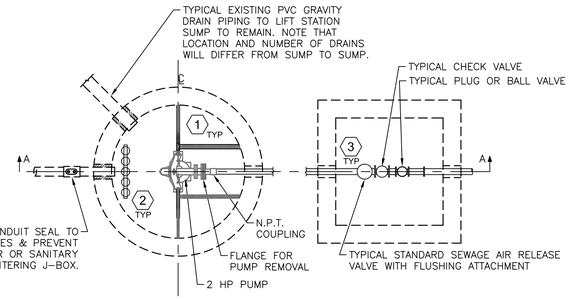
SECTION A ELEVATION

A DEMOLITION DETAILS 2 HP DUPLEX PUMP LIFT STATION

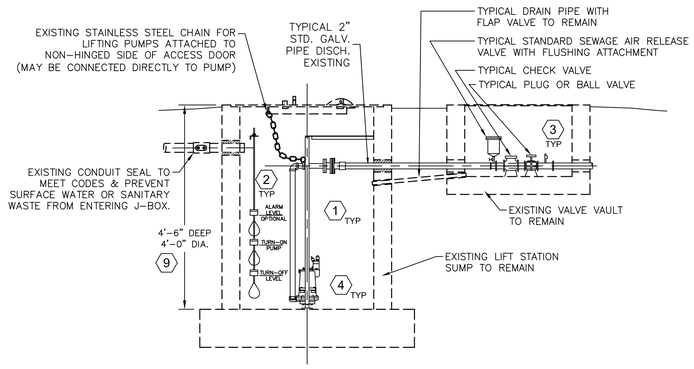
SCALE: 1/4" = 1'-0"

NOTE THAT THIS SET OF DETAILS IS INTENDED ONLY FOR THOSE LIFT STATIONS DESIGNATED FOR "COMPLETE RENOVATION" OR PARTIAL UPGRADE, INVOLVING PARTS OF THE WORK DESCRIBED HERE.

EXISTING SUMP CONFIGURATIONS AND DIMENSIONS MAY DIFFER FROM THE DETAIL. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONFIGURATION OF THE SUMP ON SITE FOR DEMOLITION AND CONSTRUCTION.



PLAN VIEW



SECTION A ELEVATION

B DEMOLITION DETAILS 2 HP SIMPLEX PUMP LIFT STATION

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

1 DEMOLITION PLANS AND DETAILS

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

REFER TO SHEETS SP-1 AND SP-2 FOR PROJECT SPECIFICATIONS.

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/06/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
DEMOLITION DETAILS AND NOTES

SHEET NUMBER
D1
OF 9
CC10232

GENERAL NOTES:

1. THE FEATURES OF THE PLANS ARE SHOWN IN APPROXIMATE DIMENSIONS AND LOCATIONS. THE ACTUAL FEATURES SHOWN MAY NOT BE DIMENSIONED EXACTLY AS INDICATED. CONTRACTOR SHALL VERIFY ALL CRITICAL DIMENSIONS ON SITE AND SHALL NOT SCALE FROM PLAN.
2. THE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC BY THEIR NATURE, AND ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR EVERY PIPE, DUCT OR CONDUIT IN ITS EXACT LOCATION. FEATURES AND COMPONENTS NOT SHOWN ARE SUBJECT TO THE REQUIREMENTS OF STANDARDS REFERENCED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL COORDINATE THE VARIOUS TRADES IN ORDER TO AVOID INTERFERENCE BETWEEN THE VARIOUS SEGMENTS OF THE PROJECT.
3. ALL WORK SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO THE BUILDING OR STRUCTURE LINES UNLESS NOTED OTHERWISE.
4. REFER TO SPECIFICATIONS AND SPECIAL NOTES FOR ADDITIONAL INFORMATION.
5. WORK AT THE LIFT STATIONS SHALL MINIMIZE THE REQUIREMENT FOR FACILITIES TO BE OUT OF SERVICE. TEMPORARY ALTERNATE ARRANGEMENTS WILL BE SCHEDULED FOR THE FACILITIES TO BE OUT OF SERVICE. KEEP IN MIND THAT OUTAGES WILL LIKELY INCONVENIENCE THE AVAILABILITY OF THE PARK TO THE PUBLIC.
6. ALL WORK THAT REQUIRES THE SHUT DOWN OF LIFT STATIONS OR OTHER EQUIPMENT SHALL BE SCHEDULED WITH THE APPROVAL OF THE PARK STAFF AS INDICATED IN THE DRAWINGS AND NOTES.
7. NOTE THAT WORK AT EACH LIFT STATION MAY REQUIRE REFERENCE TO ONLY PORTIONS OF THE DETAILS AND SPECIFICATIONS INCLUDED ON THIS SHEET. CONTRACTOR SHALL CONSULT WITH INSPECTOR OR ENGINEER IF QUESTIONS ARISE.
8. CONSTRUCTION CONTRACTOR SHALL PROTECT ALL PROJECT WORK AND EXCAVATIONS FROM ACCIDENTAL INJURY TO THE WORKERS AND THE PUBLIC USING BRIGHT SAFETY COLORED BARRICADES AND NET FENCING, AS RECOMMENDED OR REQUIRED BY OSHA OR STATE SAFETY ORDINANCES.
9. OWNER SHALL HAVE THE OPTION TO RETAIN ANY MATERIALS REMOVED UNDER THIS CONTRACT. DO NOT REMOVE ANY MATERIALS FROM PARK UNTIL OWNER RELEASES IT. CONTRACTOR SHALL DISPOSE OF ANY UNWANTED MATERIALS OFFSITE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL ORDINANCES AND REQUIREMENTS.
10. "N.I.C." = "NOT IN CONTRACT"

KEYED NOTES: "⬡"

1. REMOVE PUMPS, PIPING, VALVES, PUMP RAIL SYSTEMS, ALL STRUCTURAL SUPPORT MATERIALS, AND ELECTRICAL CONDUIT AND WIRING FROM EXISTING SUMP, UNLESS NOTED OTHERWISE. NOTE THAT SOME DUPLEX SUMPS MAY DIFFER FROM DETAIL WITH EXCESSIVE CORROSION OF STRUCTURAL SUPPORTS, BROKEN/DISPLACED PIPING AND PUMPS, MISSING PUMPS, OR DIFFERENT PIPING CONFIGURATIONS. ONLY EXISTING SUMP, GRAVITY DRAINS INTO SUMPS, AND SUMP PENETRATIONS SHALL REMAIN AFTER DEMOLITION, UNLESS NOTED OTHERWISE IN THE DETAILS ON SHEETS C2 OR C3. SEE ALSO KEYED NOTE #2.
2. REMOVE EXISTING CONTROL FLOAT SWITCHES AND WIRING FROM SUMP. PRESERVE STAINLESS STEEL SUPPORT FOR CONTROL FLOAT SWITCHES FOR REUSE WITH NEW FLOAT SWITCHES, ONLY IF THE SUPPORT MATERIAL AND FASTENERS ARE IN PRISTINE CONDITION. SUPPORT RACK SHALL BE REPLACED IF IT IS CORRODED OR BROKEN. ALL NEW FASTENERS AND ANCHORS SHALL BE STAINLESS STEEL.
3. REMOVE ALL EXISTING PIPING BETWEEN SUMP AND VALVE VAULT. REMOVE ALL PIPING WITHIN VALVE VAULT AS WELL AS CHECK VALVES, GATE VALVES AND AIR RELEASE VALVE. PRESERVE A PORTION OF EXISTING PVC FORCE MAIN PIPING FOR CONNECTION TO NEW PIPING.
4. AFTER DEMOLITION OF ALL COMPONENTS FROM SUMPS AS INDICATED, CLEAN SUMP OF ALL DEBRIS, LOOSE MATERIALS AND BIOLOGICAL GROWTH. REMOVE ALL LIQUIDS AND ALLOW SUMP TO DRY COMPLETELY. REPAIR ANY AND ALL CRACKS WITH ORGANIC BASED SEALANTS. INSTALL ALL NEW PIPING (SCHEDULE 80 PVC) AND CONDUIT (ONLY PVC CONDUIT IN SUMP), BUT BEFORE THE INSTALLATION OF ANY EQUIPMENT, STRUCTURE, OR CONTROLS, SEAL PIPING AND CONDUIT INTO NEW AND EXISTING PENETRATIONS. PROVIDE NEW COATING TO ENTIRE SUMP, TO PREVENT SEEPAGE.
5. NEW PUMPS SHALL BE SIZED TO EQUAL THE FUNCTION AND CAPACITY OF THE EXISTING PUMPS. THE EXISTING PUMPS IN ALL SUMPS INCLUDED IN THIS WORK ARE 2 H.P. HYDROMATIC MODEL #HPG200M2.
6. REMOVE EXISTING CONDUIT, AND INSTALL TWO NEW 2" RIGID (PVC IN SUMP) CONDUITS, EXTENDED TO THE NEW CONTROL PANEL. (SEE ELECTRICAL PLAN E1 FOR ADDITIONAL REQUIREMENTS.) REUSE EXISTING PENETRATIONS, AND PROVIDE NEW PENETRATION(S) IF NECESSARY. SEAL THE NEW CONDUIT INTO PENETRATIONS USING LINKSEAL (OR APPROVED EQUAL) AND CURE-IN-PLACE WATERPROOF SEALANT. PLUG AND SEAL UNUSED PENETRATIONS.
7. INSTALL NEW STRUCTURE, PUMP MOUNTS, BOTTOM ANCHORS AND CONTROLS, USING ONLY STAINLESS STEEL FASTENERS AND CONCRETE ANCHORS. ALL NEW PIPING SHALL BE SCHEDULE 80 PVC.
8. INSTALL NEW SCHEDULE 80 PVC PIPING, VALVES AND FITTINGS IN THE VALVE VAULT. ALSO REPLACE ALL PIPING BETWEEN THE PUMP SUMPS AND VALVE VAULTS WITH SCHEDULE 80 PVC PIPE AND FITTINGS.
9. DIMENSIONS LISTED ARE CLOSE, BUT APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL EXISTING DIMENSIONS ON SITE.
10. APPROXIMATE FLOAT LEVELS ARE SHOWN. ADJUST ALL LEVELS TO FUNCTION PROPERLY FOR THE APPLICATION.
11. FOR THOSE LIFT STATIONS INVOLVING THE REPLACEMENT OF VALVES AND COMPONENTS, THE COMPLETED INSTALLATION SHALL INCLUDE THE ADDITION OR REPLACEMENT OF A PVC GRAVITY BACKFLOW PREVENTER (FLAP TYPE CHECK VALVE OR EQUIVALENT) TO PREVENT THE FLOW OF LIQUID AND GASES FROM THE SUMP TO THE VALVE VAULT.
12. INSTALL (OR PRESERVE/MODIFY EXISTING) VENT FROM SUMP (2-1/2" PVC PIPE, SEALED INTO WALL), FROM SUMP TO CONTROL RACK. SUPPORT ON STRUCTURE OF RACK UP TO 8 FEET ABOVE GRADE. CORE PENETRATION INTO SUMP 9OR USE AN EXISTING PENETRATION) AND SEAL WITH LINK-SEAL OR APPROVED EQUAL. PROVIDE GOOSENECK OF 2 90° FITTINGS AND A SHORT NIPPLE AT THE TOP OF THE VENT. INSTALL STAINLESS STEEL SCREEN AND CLAMP OVER OPENING AT THE END OF THE DOWNWARD FACING GOOSENECK.
13. STAINLESS STEEL FLOAT CORD RACK (REPLACES EXISTING RACK IF CONTROLS ARE REPLACED). REPLACE IF DAMAGED. ALL NEW MATERIALS, FASTENERS AND ANCHORS SHALL BE STAINLESS STEEL.

GENERAL PROJECT SCOPE AND INTENT

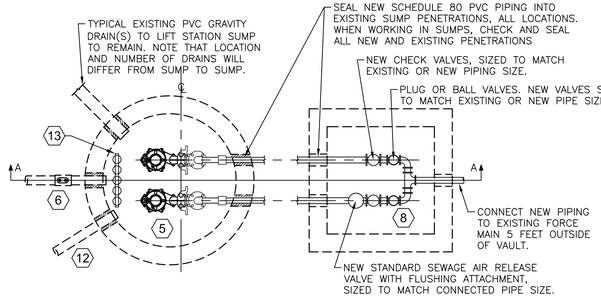
THE INTENT OF THIS PROJECT IS TO REPLACE LIFT STATION EQUIPMENT, CONTROL PANELS, AND/OR PERFORM OTHER ELECTRICAL AND/OR PLUMBING WORK AT EIGHTEEN OF THE LIFT STATIONS IN THE PARK. AS SHOWN ON THE DETAILS ON SHEETS C2 AND C3 THERE WILL LIKELY BE DIFFERING SCOPES OF WORK AT INDIVIDUAL LIFT STATIONS AS INDICATED ON SHEET G1. REFER TO DETAILS ON SHEETS C2 AND C3 FOR SPECIFIC REQUIREMENTS. IN ADDITION, THIS PROJECT WILL REQUIRE ONLY LIMITED ELECTRICAL WORK AT SEVERAL LIFT STATIONS TO PROVIDE A MANUAL TRANSFER SWITCH AND CONNECTION FOR A PORTABLE GENERATOR.

GENERAL REMOVAL NOTES

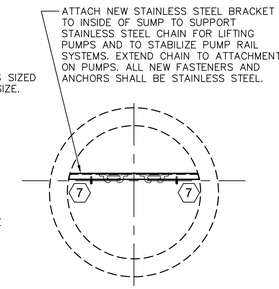
1. DETAILS ON SHEETS C2 AND C3 MAY INDICATE REQUIREMENTS TO DISCONNECT AND REMOVE THE EXISTING CONTROL PANEL AND OTHER EQUIPMENT & WIRING FROM SOME OF THE EXISTING SUPPORT RACKS AS NECESSARY TO MAKE ROOM FOR THE NEW EQUIPMENT AND OTHER ITEMS AS SHOWN ON THE DRAWINGS.
2. TO MINIMIZE THE DOWN TIME REQUIRED FOR THE FINAL CHANGE OVER WORK AT EACH LIFT STATION AND TO KEEP EACH LIFT STATION IN OPERATION FOR AS MUCH TIME AS POSSIBLE, IT MAY BE NECESSARY TO SUPPLY EXISTING CONTROL PANELS WITH TEMPORARY POWER AND EXISTING BASIN CABLES SHALL BE TEMPORARILY RE-ROUTED & RECONNECTED TO THE EXISTING CONTROL PANEL. ALSO, AN EXISTING CONTROL PANEL MAY BE REMOUNTED ON TEMPORARY SUPPORTS TO KEEP THE LIFT STATION IN OPERATION FOR AS LONG AS POSSIBLE. THIS NEED OR REQUIREMENT MAY BE NECESSARY AT LIFT STATIONS THAT SERVE CRITICAL TPWD OPERATIONAL FACILITIES SUCH AS THE HEADQUARTERS BUILDING, RESTROOMS, ETC., AND LOGISTICS SHALL BE COORDINATED THROUGH THE CONSTRUCTION MANAGER, INSPECTOR AND PARK STAFF. SHUT DOWN OF EXISTING SYSTEMS SHALL BE ARRANGED A MINIMUM OF 14 CALENDAR DAYS IN ADVANCE.

COORDINATION/SCHEDULING NOTES:

1. ALL WORK ON THIS PROJECT SHALL BE SCHEDULED AND COORDINATED WITH THE PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL.
2. DURING THIS PROJECT, MARTIN DIES, JR. STATE PARK WILL BE OPEN TO THE PUBLIC. MUCH OF THE PROJECT WORK WILL BE AROUND PUBLIC USE FACILITIES AND WILL EFFECT THE USE AND OPERATION OF THESE FACILITIES.
3. UNLESS OTHERWISE NOTED, OR ALLOWED BY THE TPWD CONSTRUCTION MANAGER OR INSPECTOR, ONLY ONE LIFT STATION AT A TIME SHALL BE OFF-LINE AT ANY TIME FOR THE CONTRACTOR TO PERFORM THE FINAL CHANGE OVER TO A NEW CONTROL PANEL AND/OR OTHER EQUIPMENT, AND THE REMOVAL AND INSTALLATION OF A NEW LIFT STATION STRUCTURE, PUMPS PIPING AND/OR VALVES. THE CONTRACTOR SHALL NOTIFY AND COORDINATE THE LENGTH OF TIME NEEDED TO COMPLETE THE RENOVATION WORK AT EACH LIFT STATION WITH PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL APPROXIMATELY 14 CALENDAR DAYS IN ADVANCE UNLESS OTHER ARRANGEMENTS ARE APPROVED BY TPWD. THE BLOCKS OF TIME NEEDED TO COMPLETE EACH LIFT STATION RENOVATION SHALL BE AGREED UPON AND SCHEDULED WITH PARK STAFF AND WITH TPWD CONSTRUCTION MANAGEMENT/INSPECTION PERSONNEL.
4. THE OUTAGE PERIODS FOR ALL LIFT STATIONS SHALL BE AS SHORT AS POSSIBLE TO MINIMIZE THE EFFECT OF WORK AT EACH OF THE FACILITIES ON THE VISITING PUBLIC.
5. THE CONTRACTOR SHALL PERFORM AS MUCH WORK AS POSSIBLE AT EACH LIFT STATION PRIOR TO TAKING THE LIFT STATION OFF-LINE FOR THE FINAL CHANGE OVER WORK OR TAKING THE LIFT STATION OFF-LINE TO REPLACE OR MODIFY POWER SUPPLY TO THE LIFT STATION. THE PRIOR WORK SHOULD INCLUDE REMOVALS, TEMPORARY WIRING, TEMPORARY SUPPORTS, RACK MODIFICATIONS, EQUIPMENT MOUNTING, INSTALLING NEW FEEDER CIRCUIT WIRING AND CONDUIT, AND ANY OTHER PRE-ASSEMBLY WORK THAT CAN BE ACCOMPLISHED WITH NO LIFT STATION OUTAGES OR SHORT DURATION OUTAGES.
6. THE CONTRACTOR SHALL NOTIFY THE PARK STAFF AND THE TPWD CONSTRUCTION MANAGER AND INSPECTOR 48 HOURS PRIOR TO ANY CHANGE IN SCHEDULED POWER OR EQUIPMENT OUTAGES NEEDED TO PERFORM THE CONTRACT WORK.

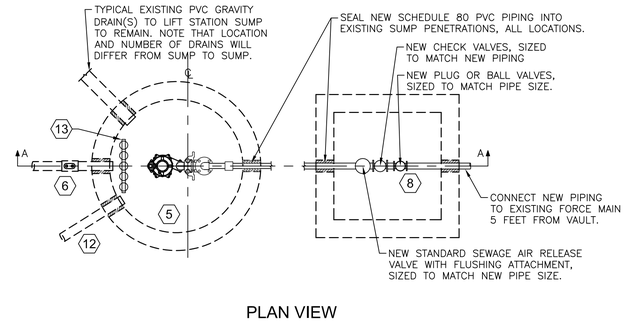


PLAN VIEW

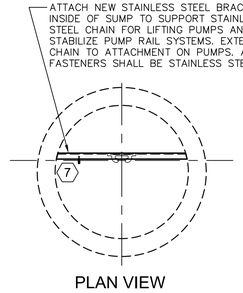


PLAN VIEW

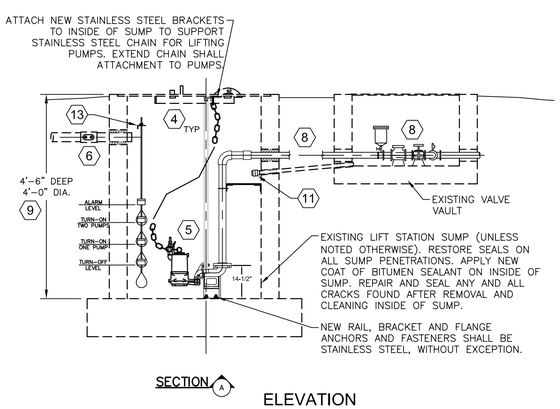
EXISTING SUMP CONFIGURATION AND DIMENSIONS MAY DIFFER FROM SUMP SHOWN IN DETAILS. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONFIGURATION ON SITE FOR DEMOLITION AND CONSTRUCTION. ALL NEW AND REPLACEMENT PIPING IN ALL LIFT STATION SYSTEMS SHALL BE NOMINAL 2" SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE.



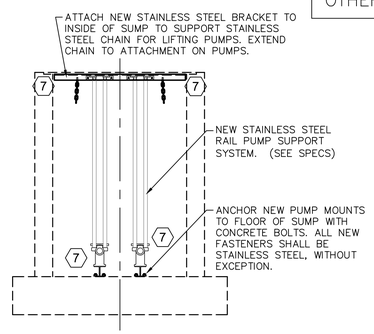
PLAN VIEW



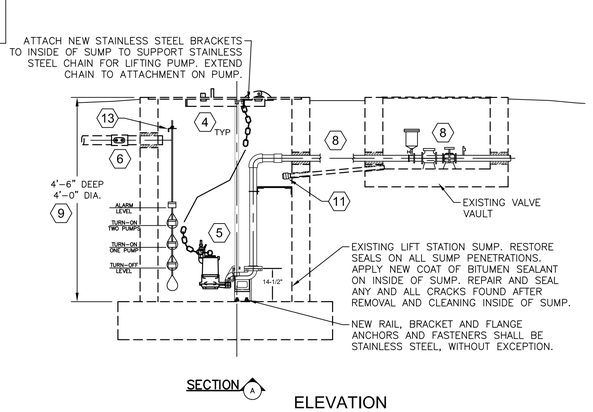
PLAN VIEW



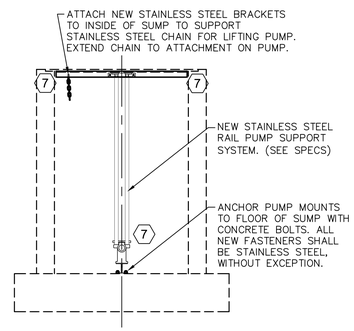
ELEVATION



ELEVATION



ELEVATION



ELEVATION

A1 TYPICAL CONSTRUCTION DETAILS 2 HP DUPLEX PUMP LIFT STATIONS
SCALE: NONE

A2 NEW PUMP RAIL INSTALLATION TYPICAL DETAIL FOR DUPLEX SUMPS
SCALE: NONE

B1 TYPICAL CONSTRUCTION DETAILS 2 HP SIMPLEX PUMP LIFT STATIONS
SCALE: NONE

B2 NEW PUMP RAIL INSTALLATION TYPICAL DETAIL FOR SIMPLEX SUMPS
SCALE: NONE

1 CONSTRUCTION PLANS AND DETAILS
SCALE: 1/4" = 1'-0"

(NOTE: "N.I.C." = "NOT IN CONTRACT")

REFER TO SHEETS SP-1 AND SP-2 FOR PROJECT SPECIFICATIONS.

TEXAS PARKS & WILDLIFE

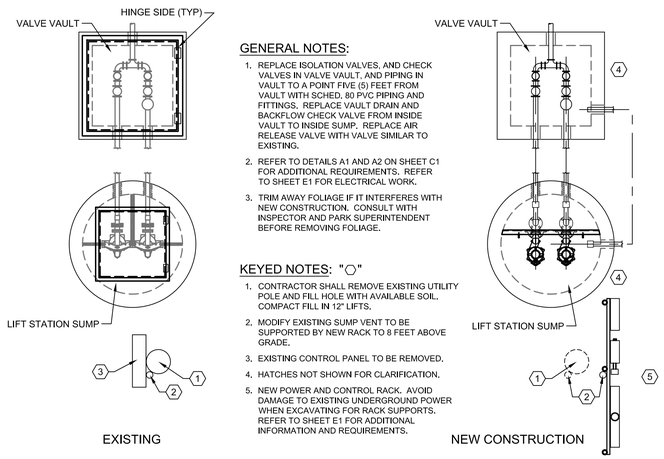
STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/06/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
GENERAL
LIFT STATION
CONSTRUCTION
DETAILS AND NOTES

SHEET NUMBER
C1
OF 9
CC.10232



GENERAL NOTES:

1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT TO A POINT FIVE (5) FEET FROM VAULT WITH SCHED, 80 PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DETAILS A1 AND A2 ON SHEET C1 FOR ADDITIONAL REQUIREMENTS. REFER TO SHEET E1 FOR ELECTRICAL WORK.
3. TRIM AWAY FOLIAGE IF IT INTERFERES WITH NEW CONSTRUCTION. CONSULT WITH INSPECTOR AND PARK SUPERINTENDENT BEFORE REMOVING FOLIAGE.

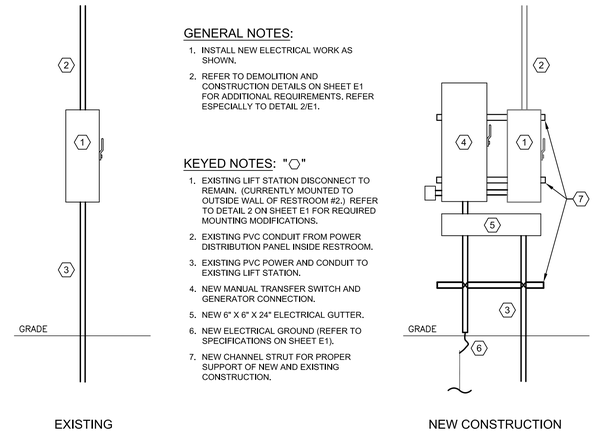
KEYED NOTES: "⬡"

1. CONTRACTOR SHALL REMOVE EXISTING UTILITY POLE AND FILL HOLE WITH AVAILABLE SOIL. COMPACT FILL IN 12" LIFTS.
2. MODIFY EXISTING SUMP VENT TO BE SUPPORTED BY NEW RACK TO 8 FEET ABOVE GRADE.
3. EXISTING CONTROL PANEL TO BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

1 LIFT STATION #1 CONFIGURATION - RESTROOM #1

SCALE: NONE

(NOTE: "N.I.C." = "NOT IN CONTRACT")



GENERAL NOTES:

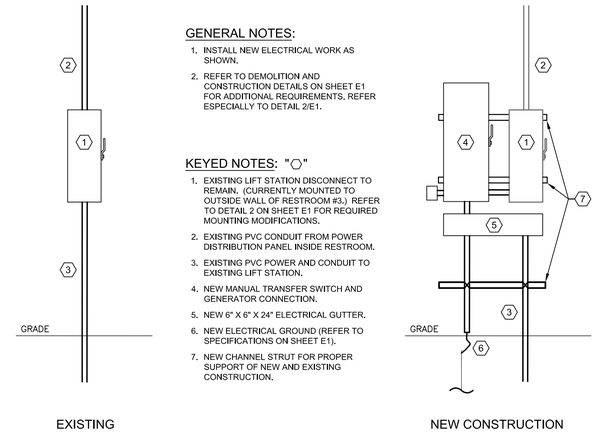
1. INSTALL NEW ELECTRICAL WORK AS SHOWN.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEET E1 FOR ADDITIONAL REQUIREMENTS. REFER ESPECIALLY TO DETAIL 2/E1.

KEYED NOTES: "⬡"

1. EXISTING LIFT STATION DISCONNECT TO REMAIN. (CURRENTLY MOUNTED TO OUTSIDE WALL OF RESTROOM #2.) REFER TO DETAIL 2 ON SHEET E1 FOR REQUIRED MOUNTING MODIFICATIONS.
2. EXISTING PVC CONDUIT FROM POWER DISTRIBUTION PANEL INSIDE RESTROOM.
3. EXISTING PVC POWER AND CONDUIT TO EXISTING LIFT STATION.
4. NEW MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION.
5. NEW 6" X 6" X 24" ELECTRICAL GUTTER.
6. NEW ELECTRICAL GROUND (REFER TO SPECIFICATIONS ON SHEET E1).
7. NEW CHANNEL STRUT FOR PROPER SUPPORT OF NEW AND EXISTING CONSTRUCTION.

2 LIFT STATION #2 CONFIGURATION - RESTROOM #2

SCALE: NONE



GENERAL NOTES:

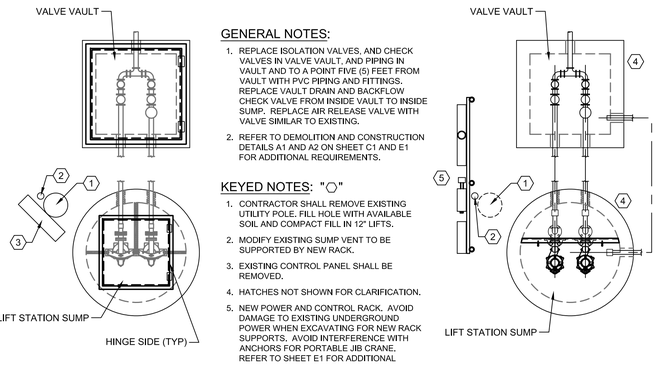
1. INSTALL NEW ELECTRICAL WORK AS SHOWN.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEET E1 FOR ADDITIONAL REQUIREMENTS. REFER ESPECIALLY TO DETAIL 2/E1.

KEYED NOTES: "⬡"

1. EXISTING LIFT STATION DISCONNECT TO REMAIN. (CURRENTLY MOUNTED TO OUTSIDE WALL OF RESTROOM #3.) REFER TO DETAIL 2 ON SHEET E1 FOR REQUIRED MOUNTING MODIFICATIONS.
2. EXISTING PVC CONDUIT FROM POWER DISTRIBUTION PANEL INSIDE RESTROOM.
3. EXISTING PVC POWER AND CONDUIT TO EXISTING LIFT STATION.
4. NEW MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION.
5. NEW 6" X 6" X 24" ELECTRICAL GUTTER.
6. NEW ELECTRICAL GROUND (REFER TO SPECIFICATIONS ON SHEET E1).
7. NEW CHANNEL STRUT FOR PROPER SUPPORT OF NEW AND EXISTING CONSTRUCTION.

3 LIFT STATION #3 CONFIGURATION - RESTROOM #3

SCALE: NONE



GENERAL NOTES:

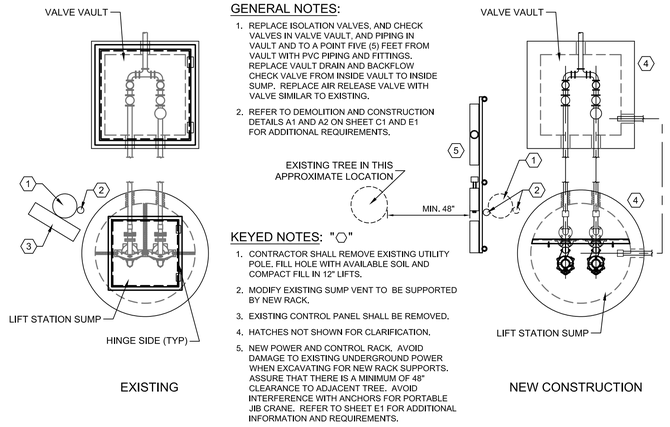
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS A1 AND A2 ON SHEET C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. CONTRACTOR SHALL REMOVE EXISTING UTILITY POLE. FILL HOLE WITH AVAILABLE SOIL AND COMPACT FILL IN 12" LIFTS.
2. MODIFY EXISTING SUMP VENT TO BE SUPPORTED BY NEW RACK.
3. EXISTING CONTROL PANEL SHALL BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR NEW RACK SUPPORTS. AVOID INTERFERENCE WITH ANCHORS FOR PORTABLE JIB CRANE. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

4 LIFT STATION #4 CONFIGURATION - RESTROOM #4

SCALE: NONE



GENERAL NOTES:

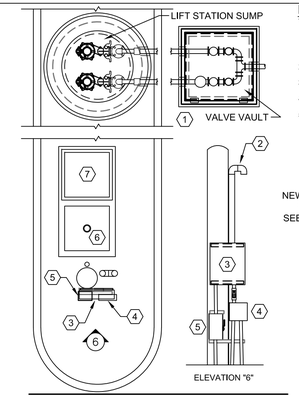
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS A1 AND A2 ON SHEET C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. CONTRACTOR SHALL REMOVE EXISTING UTILITY POLE. FILL HOLE WITH AVAILABLE SOIL AND COMPACT FILL IN 12" LIFTS.
2. MODIFY EXISTING SUMP VENT TO BE SUPPORTED BY NEW RACK.
3. EXISTING CONTROL PANEL SHALL BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR NEW RACK SUPPORTS. ASSURE THAT THERE IS A MINIMUM OF 48" CLEARANCE TO ADJACENT TREE. AVOID INTERFERENCE WITH ANCHORS FOR PORTABLE JIB CRANE. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

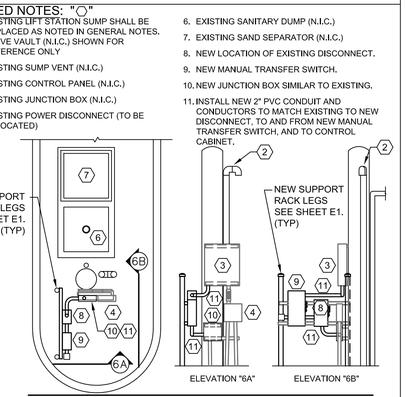
5 LIFT STATION #5 CONFIGURATION - HOST SITE #325

SCALE: NONE



KEYED NOTES: "⬡"

1. EXISTING LIFT STATION SUMP SHALL BE REPLACED AS NOTED IN GENERAL NOTES. VALVE VAULT (N.I.C.) SHOWN FOR REFERENCE ONLY
2. EXISTING SUMP VENT (N.I.C.)
3. EXISTING CONTROL PANEL (N.I.C.)
4. EXISTING JUNCTION BOX (N.I.C.)
5. EXISTING POWER DISCONNECT (TO BE RELOCATED)
6. EXISTING SANITARY DUMP (N.I.C.)
7. EXISTING SAND SEPARATOR (N.I.C.)
8. NEW LOCATION OF EXISTING DISCONNECT.
9. NEW MANUAL TRANSFER SWITCH.
10. NEW JUNCTION BOX SIMILAR TO EXISTING.
11. INSTALL NEW 2" PVC CONDUIT AND CONDUCTORS TO MATCH EXISTING TO NEW DISCONNECT, TO AND FROM NEW MANUAL TRANSFER SWITCH, AND TO CONTROL CABINET.

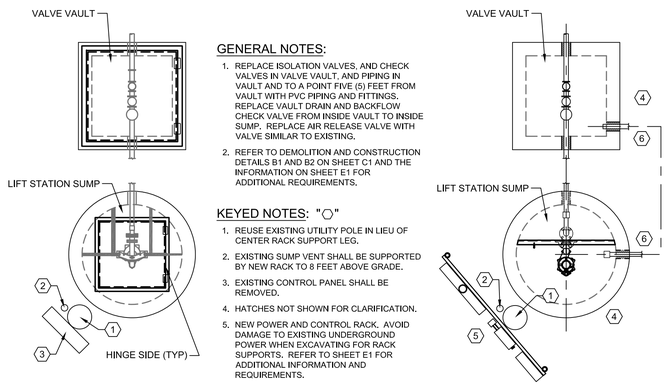


GENERAL NOTES:

1. MOVE EXISTING ELECTRICAL DISCONNECT SWITCH, INSTALL MANUAL TRANSFER SWITCH (AND GENERATOR CONNECTION) AS SHOWN IN DETAILS. REFER TO DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. IN ADDITION, REPLACE SHALLOW LIFT STATION SUMP WITH CONCRETE SUMP (SAME DIAMETER AS EXISTING) APPROXIMATELY 5 FEET DEEP. ALSO REPLACE RAILS AND FLOAT CONTROLS TO ACCOMMODATE DEEPER SUMP. REFER TO SHEET C1, DETAILS A1 AND A2 FOR ADDITIONAL REQUIREMENTS. REUSE EXISTING MANHOLE COVER FOR ACCESS TO NEW SUMP.

LIFT STATION #6 CONFIGURATION HEN HOUSE RIDGE RV DUMP STATION

6 SCALE: NONE



GENERAL NOTES:

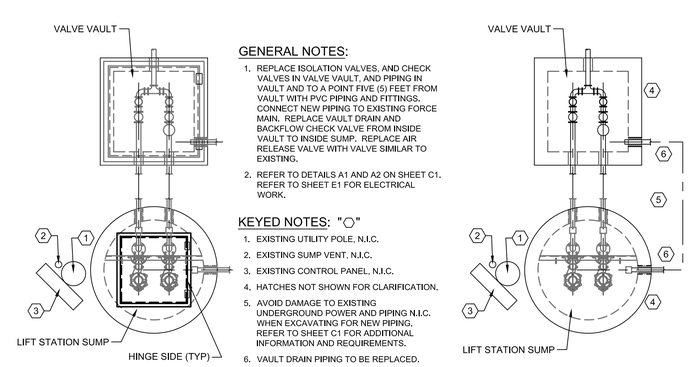
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DETAILS A1 AND A2 ON SHEET C1. REFER TO SHEET E1 FOR ELECTRICAL WORK.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE, N.I.C.
2. EXISTING SUMP VENT, N.I.C.
3. EXISTING CONTROL PANEL, N.I.C.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. AVOID DAMAGE TO EXISTING UNDERGROUND POWER AND PIPING N.I.C. WHEN EXCAVATING FOR NEW PIPING. REFER TO SHEET C1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. VAULT DRAIN PIPING TO BE REPLACED.

7 LIFT STATION #7 CONFIGURATION - RESIDENCE #2

SCALE: NONE



GENERAL NOTES:

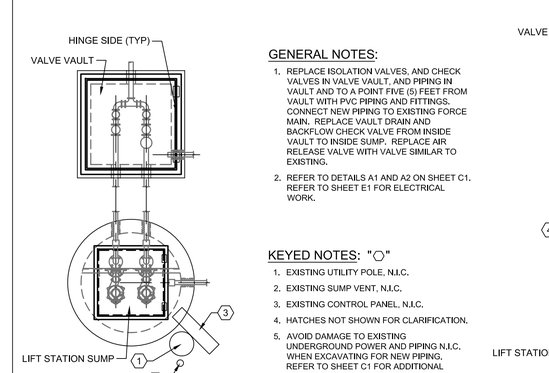
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING. CONNECT NEW PIPING TO EXISTING FORCE MAIN. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DETAILS A1 AND A2 ON SHEET C1. REFER TO SHEET E1 FOR ELECTRICAL WORK.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE, N.I.C.
2. EXISTING SUMP VENT, N.I.C.
3. EXISTING CONTROL PANEL, N.I.C.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. AVOID DAMAGE TO EXISTING UNDERGROUND POWER AND PIPING N.I.C. WHEN EXCAVATING FOR NEW PIPING. REFER TO SHEET C1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. VAULT DRAIN PIPING TO BE REPLACED.

8 LIFT STATION #8 CONFIGURATION - MAINTENANCE SHOP

SCALE: NONE



GENERAL NOTES:

1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DETAILS A1 AND A2 ON SHEET C1. REFER TO SHEET E1 FOR ELECTRICAL WORK.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE, N.I.C.
2. EXISTING SUMP VENT, N.I.C.
3. EXISTING CONTROL PANEL, N.I.C.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. AVOID DAMAGE TO EXISTING UNDERGROUND POWER AND PIPING N.I.C. WHEN EXCAVATING FOR NEW PIPING. REFER TO SHEET C1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. VAULT DRAIN PIPING TO BE REPLACED.

9 LIFT STATION #9 CONFIGURATION - HEADQUARTERS

SCALE: NONE

(NOTE: "N.I.C." = "NOT IN CONTRACT")

TEXAS PARKS & WILDLIFE

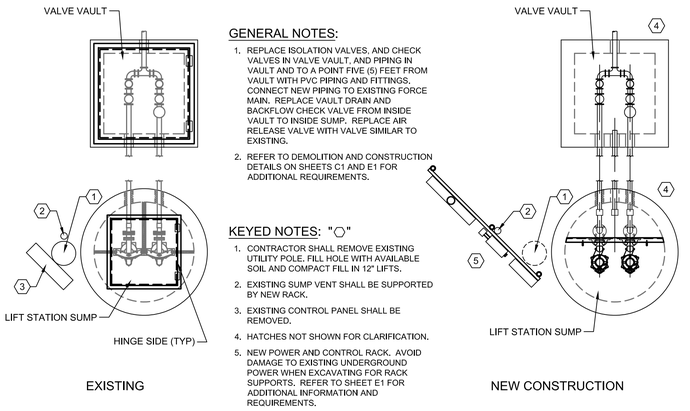
STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/03/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
LIFT STATION CONSTRUCTION DETAILS

SHEET NUMBER
C2
OF 9
CC.10232



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS, CONNECT NEW PIPING TO EXISTING FORCE MAIN. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

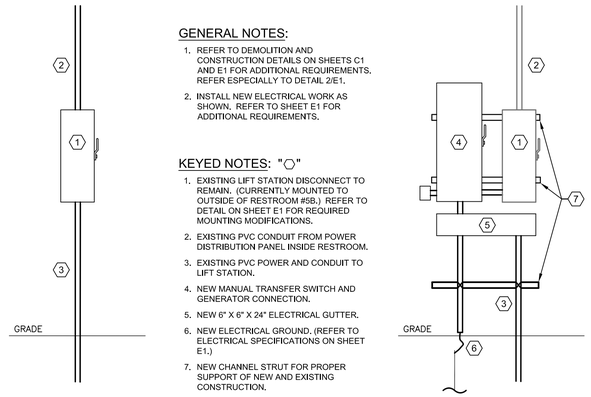
KEYED NOTES: "⬡"

1. CONTRACTOR SHALL REMOVE EXISTING UTILITY POLE. FILL HOLE WITH AVAILABLE SOIL AND COMPACT FILL IN 12" LIFTS.
2. EXISTING SUMP VENT SHALL BE SUPPORTED BY NEW RACK.
3. EXISTING CONTROL PANEL SHALL BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

10 LIFT STATION #10 CONFIGURATION - RESTROOM #5A

SCALE: NONE

(NOTE: "N.I.C." = "NOT IN CONTRACT")



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

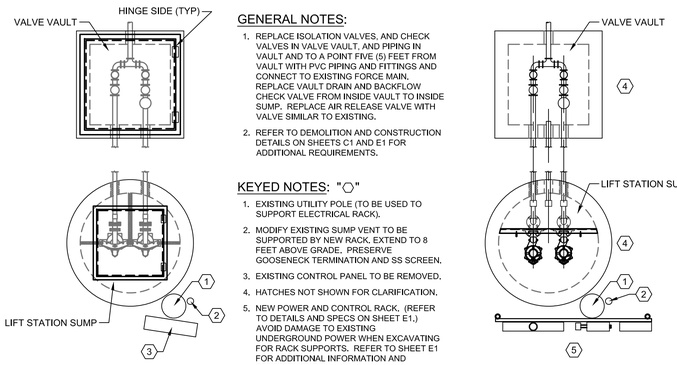
1. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL REQUIREMENTS. REFER ESPECIALLY TO DETAIL 2/E1.
2. INSTALL NEW ELECTRICAL WORK AS SHOWN. REFER TO SHEET E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. EXISTING LIFT STATION DISCONNECT TO REMAIN. (CURRENTLY MOUNTED TO OUTSIDE OF RESTROOM #5B.) REFER TO DETAIL ON SHEET E1 FOR REQUIRED MOUNTING MODIFICATIONS.
2. EXISTING PVC CONDUIT FROM POWER DISTRIBUTION PANEL INSIDE RESTROOM.
3. EXISTING PVC POWER AND CONDUIT TO LIFT STATION.
4. NEW MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION.
5. NEW 6" X 6" X 24" ELECTRICAL GUTTER.
6. NEW ELECTRICAL GROUND. (REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E1.)
7. NEW CHANNEL STRUT FOR PROPER SUPPORT OF NEW AND EXISTING CONSTRUCTION.

11 LIFT STATION #11 CONFIGURATION - RESTROOM #5B

SCALE: NONE



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

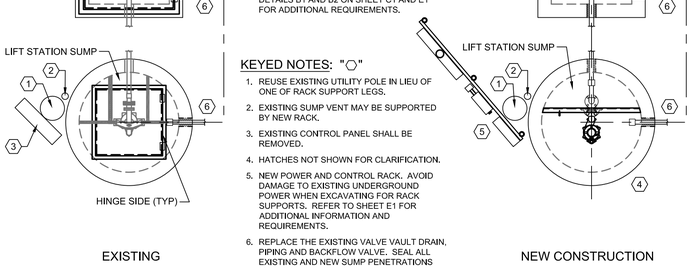
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS AND CONNECT TO EXISTING FORCE MAIN. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE (TO BE USED TO SUPPORT ELECTRICAL RACK).
2. MODIFY EXISTING SUMP VENT TO BE SUPPORTED BY NEW RACK. EXTEND TO 8 FEET ABOVE GRADE. PRESERVE GOOSENECK TERMINATION AND SS SCREEN.
3. EXISTING CONTROL PANEL TO BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. (REFER TO DETAILS AND SPECS ON SHEET E1.) AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

12 LIFT STATION #12 CONFIGURATION - RESTROOM #6

SCALE: NONE



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

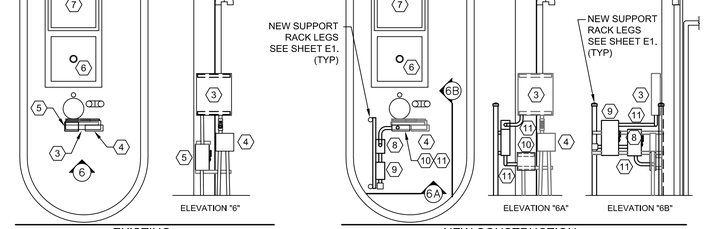
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH SCHED. 80PVC PIPING AND FITTINGS (CONNECT TO EXISTING FORCE MAIN PIPING). REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS B1 AND B2 ON SHEET C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. REUSE EXISTING UTILITY POLE IN LIEU OF ONE OF RACK SUPPORT LEGS.
2. EXISTING SUMP VENT MAY BE SUPPORTED BY NEW RACK.
3. EXISTING CONTROL PANEL SHALL BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. REPLACE THE EXISTING VALVE VAULT DRAIN, PIPING AND BACKFLOW VALVE. SEAL ALL EXISTING AND NEW SUMP PENETRATIONS GAS TIGHT.

13 LIFT STATION #13 CONFIGURATION - HOST SITE #515

SCALE: NONE



EXISTING

NEW CONSTRUCTION

KEYED NOTES: "⬡"

1. LIFT STATION SUMP SHALL BE REPLACED AS NOTED IN GENERAL NOTES. VALVE VAULT (N.I.C.) SHOWN FOR REFERENCE ONLY (VALVE VAULT AND SUMP SHOWN AT 90° TO ACTUAL INSTALLATION FOR DRAWING CONVENIENCE)
2. EXISTING SUMP VENT (N.I.C.)
3. EXISTING CONTROL PANEL (N.I.C.)
4. EXISTING JUNCTION BOX (N.I.C.)
5. EXISTING POWER DISCONNECT (TO BE RELOCATED)
6. EXISTING SANITARY CONNECTION (N.I.C.)
7. EXISTING SAND SEPARATOR (N.I.C.)
8. NEW LOCATION OF EXISTING DISCONNECT.
9. NEW MANUAL TRANSFER SWITCH.
10. NEW JUNCTION BOX SIMILAR TO EXISTING.
11. INSTALL NEW 2" PVC CONDUIT AND CONDUCTORS TO MATCH EXISTING TO NEW LOCATION OF DISCONNECT, TO AND FROM NEW MANUAL TRANSFER SWITCH, AND TO CONTROL CABINET.

GENERAL NOTES:

1. MOVE EXISTING ELECTRICAL DISCONNECT SWITCH, INSTALL MANUAL TRANSFER SWITCH (AND GENERATOR CONNECTION) AS SHOWN IN DETAILS. REFER TO DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. IN ADDITION, REPLACE SHALLOW LIFT STATION SUMP WITH CONCRETE SUMP (SAME DIAMETER AS EXISTING) APPROXIMATELY 5 FEET DEEP. ALSO REPLACE RAILS AND FLOAT CONTROLS TO ACCOMMODATE DEEPER SUMP. REFER TO SHEET C1, DETAILS A1 AND A2 FOR ADDITIONAL REQUIREMENTS. REUSE EXISTING MANHOLE COVER FOR ACCESS TO NEW SUMP.

14 LIFT STATION #14 CONFIGURATION WALNUT RIDGE RV DUMP STATION

SCALE: NONE

EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

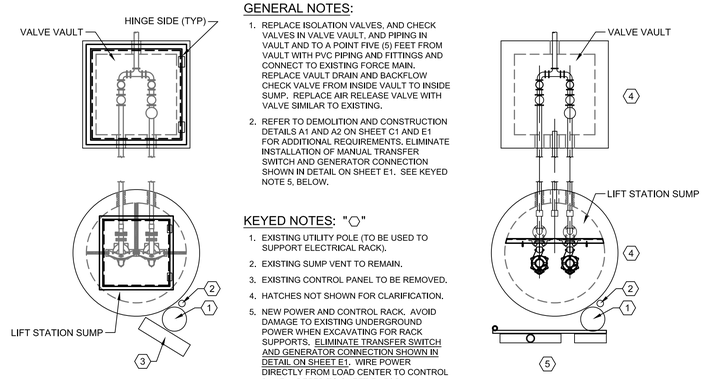
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH SCHED. 80PVC PIPING AND FITTINGS (CONNECT TO EXISTING FORCE MAIN PIPING). REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS ON SHEETS C1 AND E1 FOR ADDITIONAL REQUIREMENTS.

KEYED NOTES: "⬡"

1. REUSE EXISTING UTILITY POLE IN PLACE OF A NEW RACK LEG.
2. EXISTING SUMP VENT SHALL REMAIN.
3. EXISTING CONTROL PANEL SHALL BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

16 LIFT STATION #16 CONFIGURATION - GROUP DINING

SCALE: NONE



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

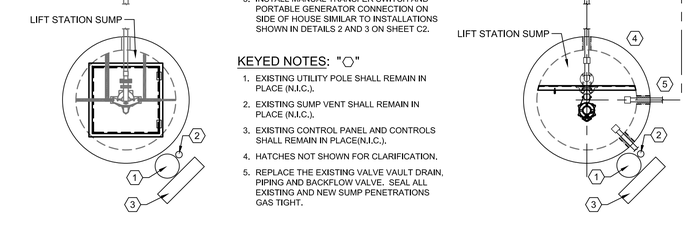
1. REPLACE ISOLATION VALVES, AND CHECK VALVES IN VALVE VAULT, AND PIPING IN VAULT AND TO A POINT FIVE (5) FEET FROM VAULT WITH PVC PIPING AND FITTINGS AND CONNECT TO EXISTING FORCE MAIN. REPLACE VAULT DRAIN AND BACKFLOW CHECK VALVE FROM INSIDE VAULT TO INSIDE SUMP. REPLACE AIR RELEASE VALVE WITH VALVE SIMILAR TO EXISTING.
2. REFER TO DEMOLITION AND CONSTRUCTION DETAILS A1 AND A2 ON SHEET C1 AND E1 FOR ADDITIONAL REQUIREMENTS. ELIMINATE INSTALLATION OF MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION SHOWN IN DETAIL ON SHEET E1. SEE KEYED NOTE 5, BELOW.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE (TO BE USED TO SUPPORT ELECTRICAL RACK).
2. EXISTING SUMP VENT TO REMAIN.
3. EXISTING CONTROL PANEL TO BE REMOVED.
4. HATCHES NOT SHOWN FOR CLARIFICATION.
5. NEW POWER AND CONTROL RACK. AVOID DAMAGE TO EXISTING UNDERGROUND POWER WHEN EXCAVATING FOR RACK SUPPORTS. ELIMINATE TRANSFER SWITCH AND GENERATOR CONNECTION SHOWN IN DETAIL ON SHEET E1. WIRE POWER DIRECTLY FROM LOAD CENTER TO CONTROL PANEL. REFER TO SHEET E1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

17 LIFT STATION #17 CONFIGURATION - NATURE CENTER

SCALE: NONE



EXISTING

NEW CONSTRUCTION

GENERAL NOTES:

1. REPLACE VALVES, PIPING AND COMPONENTS IN VALVE VAULT, AND AS INDICATED BELOW. VAULT DRAIN TO SUMP SHALL REMAIN N.I.C. INCLUDE PRESSURED PIPING INTO SUMP AND OUT OF VAULT TO 5 FEET FROM VAULT. ALL PIPING SHALL BE SCHEDULE 80 PVC. ALL VALVES AND FITTINGS SHALL BE FLANGED PVC, AND SHALL BE SAME SIZE AS EXISTING. CONTRACTOR SHALL VERIFY SIZE IN FIELD. EXTEND NEW SCHED. 80 PIPING MINIMUM OF 5 FEET FROM VAULT AND CONNECT TO EXISTING FORCE MAIN.
2. REFER TO DETAILS A1 AND A2 ON SHEET C1 FOR ADDITIONAL REQUIREMENTS FOR THE SCOPE OF WORK DESCRIBED ABOVE.

KEYED NOTES: "⬡"

1. EXISTING UTILITY POLE, N.I.C.
2. EXISTING SUMP VENT, N.I.C.
3. EXISTING CONTROL PANEL, ELECTRICAL DISCONNECT AND JUNCTION BOX, N.I.C.
4. REPLACE VALVES WITH FLANGED PVC BALL VALVES. FLANGED PVC CHECK VALVES. AND FLANGED FITTINGS. ALL VALVES, FITTINGS AND FLANGES SHALL BE RATED 250 PSI.

18 LIFT STATION #18 CONFIGURATION - 48 NORTH

SCALE: NONE

(NOTE: "N.I.C." = "NOT IN CONTRACT")

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/03/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE

LIFT STATION CONSTRUCTION DETAILS

SHEET NUMBER

C3

OF 9

CC10232

PROJECT SPECIFICATIONS - page 1 of 2

DIVISION 22 - PLUMBING

GENERAL PLUMBING REQUIREMENTS

1. QUALIFICATIONS
   A. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
   B. INSTALLER: COMPANY SPECIALIZING IN PERFORMING WORK OF THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
2. PIPING MATERIALS
   A. PVC PIPE: ASTM D1785, SCHEDULE 80, POLYVINYL CHLORIDE (PVC) MATERIAL; 304 STAINLESS STEEL.
   B. FITTINGS: ASTM D2466, SCHEDULE 80, PVC; 304 STAINLESS STEEL
   C. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT. STAINLESS STEEL FITTINGS AND JOINTS SHALL BE TAPERED N.P.T., SEALED AND LUBRICATED WITH TEFLON BASED PASTE PIPE DOPE.
3. VALVES AND OTHER FUNCTIONAL COMPONENTS
   A. EXPOSED MATERIALS SHALL BE BRONZE OR BRASS, INCLUDING VALVE SHAFT(S), PACKING GLANDS, NUTS, BOLTS, SCREWS AND ANCHORS.
4. CODES, STANDARDS, AND SUPERVISION:
   A. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CODE AND ANY LOCAL OR STATE CODES LISTED ON THE COVER SHEET OF THESE PLANS.
   B. NO WORK SHALL BE PERFORMED WITHOUT THE PRESENCE ON SITE OF THE CONTRACTOR'S WORK SUPERINTENDENT.

PUMP RAIL SYSTEMS AND STRUCTURAL COMPONENTS

1. SYSTEM MANUFACTURERS:
   A. MYERS, MODEL SRA
   B. PENTAIR
   C. APPROVED EQUIVALENT
2. MATERIALS AND FASTENERS (ANY AND ALL MATERIALS IN CONTACT WITH SANITARY WASTE AND/OR INSTALLED OR USED WITHIN THE LIFT STATION SUMP:
   A. STAINLESS STEEL, CAST IRON, OR BRONZE
   B. EXPOSED MATERIALS SHALL BE BRONZE OR BRASS, INCLUDING VALVE SHAFT(S), PACKING GLANDS, NUTS, BOLTS, SCREWS AND ANCHORS.
   C. FLOATS, ELECTRICAL WIRING, CABLES AND RACEWAYS SHALL BE STAINLESS STEEL, PVC, CAST IRON, OR NEOPRENE RUBBER. WIRE INSULATION SHALL BE AS SPECIFIED IN DIVISION 26. WIRE CONNECTIONS SHALL BE TIGHTLY AND SECURELY SEALED AGAINST LIQUIDS AND GASSES.
   D. MATING SURFACES SHALL BE MACHINED CAST IRON, O-RING SEALED.

PUMPS

1. MANUFACTURERS:
   A. MYERS
   B. HYDROMATIC
   C. FLYGT
   D. APPROVED EQUIVALENT
2. SIZE AND PERFORMANCE OF EACH PUMP SHALL MATCH THE PUMP EACH PUMP REPLACES. REFER TO NOTES IN PLANS FOR ADDITIONAL INFORMATION.
3. PUMPS SHALL BE SUBMERSIBLE GRINDER TYPE, FULLY WATER AND GAS SEALED. ALL EXPOSED MATERIALS SHALL BE STAINLESS STEEL, CAST IRON, PVC, OR NEOPRENE (SEALS ONLY).
4. PUMPS SHALL HAVE INTEGRAL, "BUILT-IN" CHECK VALVES.
5. HEAVY-DUTY CONSTRUCTION, FULLY CORROSION RESISTANT, WITH ANTI-FLOTATION RING.

DIVISION 26 - ELECTRICAL

ELECTRICAL NOTES:

1. THE WORK COVERED BY THE ELECTRICAL SPECIFICATIONS SHALL INCLUDE THE FURNISHING OF ALL MATERIALS, LABOR, TRANSPORTATION, TOOLS, PERMITS, FEES AND INCIDENTALS NECESSARY TO COMPLETE THE ELECTRICAL WORK FOR THE PROJECT.
   A. CODES, STANDARDS, AND SUPERVISION:
      - ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND ANY LOCAL OR STATE CODES.
      - FOR THE ACTUAL FABRICATION, INSTALLATION AND TESTING OF THE WORK, THE CONTRACTOR SHALL HAVE A QUALIFIED JOURNEYMAN OR MASTER ELECTRICIANS, LICENSED BY THE STATE OF TEXAS, PERFORMING OR SUPERVISING ALL ELECTRICAL WORK FOR THE PROJECT. SUBMIT A COPY OF THE ALL ELECTRICAL WORKER'S STATE OF TEXAS ELECTRICAL LICENSE AS PART OF THE ADMINISTRATIVE SUBMITTAL REQUIREMENTS FOR THE PROJECT.
2. SUBMITTALS AND SUBSTITUTIONS:
   A. SUBMIT MANUFACTURER'S PRODUCT DATA ON THE FOLLOWING ITEMS:
      - WIRE, CABLE AND WIREWAYS
      - CIRCUIT BREAKERS
      - ELECTRICAL EQUIPMENT AND CONTROLS - ALL SYSTEMS AND COMPONENTS
3. CONDUITS:
   A. RIGID CONDUIT: RIGID CONDUIT SHALL BE GALVANIZED RIGID STEEL CONDUIT WITH A MINIMUM SIZE OF 1/2".
   B. ELECTRICAL METALLIC TUBING (EMT): ELECTRICAL METALLIC TUBING SHALL BE GALVANIZED STEEL WITH A MINIMUM SIZE OF 1/2". USE ONLY COMPRESSION FITTINGS ON EMT, SET SCREW FITTINGS WILL NOT BE ACCEPTED.
   C. THE CONTRACTOR MAY INSTALL MC CABLE ONLY IN CONCEALED LOCATIONS INSIDE FRAMED WALLS OR ABOVE CEILINGS. INSTALL MC CABLE WITH PROPER CONNECTORS AND FITTINGS.
   D. THE CONTRACTOR SHALL USE PVC PLASTIC CONDUIT ONLY IN UNDERGROUND LOCATIONS AS SPECIFIED ON THE DRAWINGS. ALL PVC CONDUIT SHALL BE SCHEDULE 40.
   E. FLEXIBLE CONDUIT: FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED STEEL. FLEXIBLE METAL CONDUIT LOCATED IN EXTERIOR AND WET LOCATIONS SHALL BE THE SEAL-TIGHT TYPE. SEALTIGHT OR FLEXIBLE METAL CONDUIT LENGTH SHALL BE LIMITED TO A MAXIMUM OF 3' UNLESS NOTED SPECIFICALLY ON THE DRAWINGS.
4. WIRE AND CABLE:
   A. THE CONDUCTOR MATERIAL SHALL BE COPPER, TYPE THHN-THWN RATED AT 75 °C.
   B. NO CONDUCTOR SHALL BE SMALLER THAN NO. 12 WIRE, EXCEPT FOR THE CONTROL WIRING AND AS STATED IN OTHER SECTIONS OF THE SPECIFICATIONS OR ON THE DRAWINGS. WIRING TO SWITCHES SHALL NOT BE CONSIDERED AS CONTROL WIRING.
   C. ALL CONDUCTORS WITH THE SIZE OF NO. 8 OR LARGER SHALL BE STRANDED.
   D. ALL WIRING SHALL BE COLOR CODED IN ACCORDANCE WITH ARTICLE 210 OF THE NEC. WIRE SIZES #8 AND SMALLER SHALL HAVE INSULATION IN COLORS. SIZES #6 AND LARGER MAY BE IDENTIFIED ON EACH END BY COLORED, ELECTRICAL MARKING TAPE. IN ADDITION, THE 120/240 VOLT PHASE CONDUCTORS SHALL BE COLOR-CODED THROUGHOUT THE PROJECT WITH PHASE "A" CONDUCTORS COLORED BLACK AND PHASE "B" CONDUCTORS COLORED RED.
5. OUTLET BOXES:
   A. BEFORE LOCATING THE OUTLET BOXES, CHECK ALL OF THE ELECTRICAL, MECHANICAL, AND ARCHITECTURAL DRAWINGS FOR TYPE OF CONSTRUCTION AND TO MAKE SURE THAT THERE IS NO CONFLICT WITH OTHER EQUIPMENT.
   B. OUTLET BOXES SHALL BE MADE OF GALVANIZED SHEET STEEL UNLESS OTHERWISE NOTED. THE OUTLET BOXES SHALL BE COMPLETE WITH THE APPROVED TYPE OF CONNECTORS AND REQUIRED ACCESSORIES AND SHALL BE SECURELY FASTENED IN POSITION WITH THE EXPOSED EDGE OF THE RAISED DEVICE COVER SET FLUSH WITH THE FINISHED SURFACE FOR FLUSH INSTALLATIONS.
6. PULL AND JUNCTION BOXES:
   A. PULL/JUNCTION BOXES SHALL BE INSTALLED AT ALL NECESSARY POINTS, WHETHER INDICATED ON THE DRAWINGS OR NOT, TO PREVENT INJURY TO THE INSULATION OR OTHER DAMAGE THAT COULD OCCUR FROM PULLING RESISTANCE FOR OTHER REASONS NECESSARY TO PROPER INSTALLATION. MINIMUM DIMENSIONS SHALL BE NOT LESS THAN NEC REQUIREMENTS AND SHALL BE INCREASED IF NECESSARY FOR PRACTICAL REASONS OR WHERE REQUIRED TO FIT A JOB CONDITION.
   B. ALL BOXES SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL, CODE GAUGE, EXCEPT THAT NO LESS THAN 12 GAUGE SHALL BE USED FOR ANY BOX. MINIMUM BOX SIZE IS 4" SQUARE WITH COVER TO MATCH BOX.
   C. EACH CIRCUIT WIRE IN EVERY JUNCTION OR PULL BOX SHALL BE MARKED WITH A WIRE MARKER DENOTING PANEL CIRCUIT. THE COVER OF EACH JUNCTION OR PULL BOX SHALL BE MARKED WITH THE CIRCUIT NUMBERS OF THE WIRING INSTALLED IN THE BOX. USE AN INDELIBLE, BLACK MARKER TO MARK EACH COVER.
7. CIRCUIT BREAKERS:
   A. PROVIDE MOLDED-CASE CIRCUIT BREAKERS WITH THE TRIP RATING NECESSARY TO PROTECT THE NEW EQUIPMENT PER THE AMPERAGES SHOWN IN THE EQUIPMENT SCHEDULE. THE CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC, TRIP-INDICATING AND HAVE COMMON TRIP ON ALL MULTI-POLE BREAKERS WITH INTERNAL TIE MECHANISM.
8. CONDUIT HANGERS AND SUPPORTS:
   A. CONDUIT SHALL BE SECURELY AND RIGIDLY SUPPORTED TO THE BUILDING STRUCTURE IN A NEAT AND WORKMAN-LIKE MANNER. SUPPORT SPACING SHALL COMPLY WITH NEC REQUIREMENTS.
   B. AS NOTED ON THE DRAWINGS, EXPOSED CONDUIT SHALL BE SUPPORTED BY ONE-HOLE OR TWO-HOLE STRAPS OR BY CHANNEL STRUT AND STRAPS FASTENED TO THE SURFACE WITH FASTENERS APPROPRIATE TO THE LOCATION.
9. IDENTIFICATION AND MARKINGS:
   A. THE NEW LOAD CENTER SHALL HAVE A CIRCUIT DIRECTORY CARD LOCATED INSIDE THE DOOR. THE DIRECTORY CARD SHALL BE TYPED AND IDENTIFY THE LOAD FED BY EACH CIRCUIT.
   B. AN ENGRAVED, PLASTIC NAMEPLATE SHALL BE ATTACHED TO THE DOOR OF THE LOAD CENTER AND TO THE DOORS OF ALL HVAC DISCONNECT SWITCHES VIA SCREWS OR RIVETS TO INDICATE DEVICE NAME, VOLTAGE AND PHASE. THESE NAMEPLATES SHALL BE BLACK WITH WHITE, 1/4" OR LARGER LETTERING.
   C. FINAL APPROVAL AND ACCEPTANCE OF THE WORK WILL BE SUBJECT TO ALL IDENTIFICATION BEING COMPLETE AND IN PLACE TO CLEARLY DISTINGUISH ALL EQUIPMENT AND CIRCUITS.
10. CONDUIT INSTALLATION:
    A. CONDUIT SHALL BE SECURELY FASTENED TO ALL SHEET METAL ENCLOSURES WITH GALVANIZED LOCK-NUTS AND PLASTIC BUSHINGS. CONDUITS ATTACHED TO THE TOPS OF OUTDOOR ENCLOSURES SHALL BE ATTACHED WITH WEATHER TIGHT HUBS. CONDUITS ATTACHED TO THE SIDES OR BOTTOMS OF OUTDOOR ENCLOSURES SHALL BE ATTACHED WITH SEALING LOCKNUTS.
11. CONDUCTOR WORKMANSHIP:
    A. USE SUFFICIENT AMOUNTS OF WIRE PULLING LUBRICANT TO LESSEN THE CHANCE OF INJURY DURING WIRE PULLING. NO LUBRICANT OTHER THAN APPROVED PULLING COMPOUND MAY BE USED TO PULL CONDUCTORS.
    B. AT LEAST SIX (6) INCHES OF SLACK WIRE SHALL BE LEFT IN EVERY OUTLET BOX WHETHER IT IS IN USE OR LEFT FOR FUTURE USE.
    C. ALL CONDUCTORS AND CONNECTIONS SHALL TEST FREE OF GROUNDS, SHORTS AND OPENS BEFORE TURNING THE JOB OVER TO THE OWNER. ALL CONDUCTORS DAMAGED DURING INSTALLATION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE. WIRE WITH OUTER JACKET DAMAGED (THWN/THHN) WILL NOT BE ACCEPTED.
12. GROUNDING:
    A. A SEPARATE GROUND WIRE SHALL BE PROVIDED THROUGHOUT THE ELECTRICAL SYSTEM AND INTERCONNECTED TO THE ENTIRE CONDUIT SYSTEM AND EVERY FIXTURE, APPLIANCE, LOAD CENTER, ENCLOSURE, AND OTHER ELECTRICAL DEVICE OF WHATEVER CHARACTER. ELECTRICAL CONTINUITY OF ALL METALLIC CONDUIT SYSTEMS SHALL BE ASSURED.
13. WATERPROOFING:
    A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL FLASHING, CAULKING, AND SLEEVES REQUIRED WHERE HIS ITEMS PASS THROUGH THE OUTSIDE WALLS, SLAB OR ROOF. THE WATERPROOFING OF THE OPENINGS SHALL BE MADE ABSOLUTELY WATERTIGHT. THE OWNER SHALL APPROVE THE METHOD OF INSTALLATION.
14. CONNECTIONS TO ELECTRICAL EQUIPMENT FURNISHED BY OTHERS:
    A. THIS CONTRACTOR SHALL INSTALL WIRING AND MAKE FINAL CONNECTIONS TO ALL ELECTRICALLY OPERATED EQUIPMENT FOR THE PROJECT. OTHER CONTRACTORS SHALL FURNISH ALL ROUGH-IN DRAWINGS AND WIRING DIAGRAMS REQUIRED FOR PROPER INSTALLATION. THIS CONTRACTOR SHALL, IN WRITING, REQUEST OF OTHERS THE INFORMATION HE REQUIRES IN AMPLE TIME TO PERMIT PROPER INSTALLATION OF ALL WIRING FOR THE EQUIPMENT FURNISHED BY OTHERS.
15. TESTS:
    A. DURING CONSTRUCTION, SYSTEM TESTING SHALL BE ACCOMPLISHED TO DETERMINE WHETHER SYSTEMS ARE SUITABLY WIRED, OR IF SYSTEMS OPERATE AS DESCRIBED. NOTIFY OWNER'S REPRESENTATIVE 48 HOURS PRIOR TO ANY TESTING AND ENERGIZING. TEST RESULTS WILL NOT BE VALID UNLESS WITNESSED BY OWNER'S REPRESENTATIVE.
    B. TEST INSTALLATION AFTER WIRING IS COMPLETED AND WHEN EQUIPMENT HAS BEEN CONNECTED READY FOR USE. RESISTANCE BETWEEN CONDUCTORS AND BETWEEN EACH CONDUCTOR AND GROUND SHALL CONFORM TO NEC.
    C. DURING THE FINAL INSPECTION, TAKE AMPERAGE AND VOLTAGE READINGS AT THE LOAD CENTER WITH CIRCUITS IN OPERATION AND WITH OWNER'S REPRESENTATIVE PRESENT TO DEMONSTRATE THAT THE LOAD IS BALANCED AT THE LOAD CENTER.
    D. CONTRACTOR SHALL PROVE AND TEST THAT ENERGY IS AVAILABLE AT THE LOAD SIDE OF EACH DISCONNECT SWITCH AND AT THE FINAL POINT OF CONNECTION OF ALL DRIVEN EQUIPMENT HE HAS CONNECTED.

PART 1 - GENERAL

1.1 CODES AND STANDARDS: ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRIC CODE LISTED ON THE COVER SHEET. THE ELECTRICAL WORK SHALL BE PERFORMED UNDER THE DIRECT, ON-SITE SUPERVISION OF A LICENSED, JOURNEYMAN OR MASTER ELECTRICIAN. SUBMIT COPIES OF THE TDLR LICENSES FOR THE MASTER, JOURNEYMAN, AND APPRENTICE ELECTRICIANS THAT WILL PERFORM THE WORK.

1.2 MATERIAL SUBMITTALS: SUBMIT MANUFACTURERS' PRODUCT DATA FOR THE FOLLOWING ELECTRICAL SYSTEM ITEMS:

   A. LOAD CENTERS: ENCLOSURES, INTERIORS, BRANCH CIRCUIT BREAKERS AND ACCESSORIES
   B. DOUBLE POLE, SAFETY SWITCHES
   C. LIGHTNING ARRESTORS AND SURGE CAPACITORS

PART 2 - PRODUCTS

2.1 RIGID STEEL CONDUIT: PROVIDE RIGID STEEL, ZINC-COATED, THREADED TYPE CONFORMING TO ANSI C80.1 AND UL 6. PROVIDE ZINC COATING FUSED TO INSIDE AND OUTSIDE WALLS. RIGID METAL CONDUIT FITTINGS: CAST MALLEABLE IRON, GALVANIZED OR CADMIUM PLATED. ALL FITTINGS SHALL BE THREADED TYPE. THE USE OF SPLIT COUPLINGS IS UNACCEPTABLE.

2.2 EMT CONDUIT: PROVIDE EMT CONFORMING TO ANSI C80.3 FOR GALVANIZED TUBING. PROVIDE ZINC COATING FUSED TO INSIDE AND AND OUTSIDE WALLS. USE RAINTIGHT, COMPRESSION FITTINGS ONLY.

2.3 LIQUID TIGHT CONDUIT: PROVIDE WITH NON-METALLIC, OUTDOOR RATED JACKET OVER A STEEL, FLEXIBLE METAL CORE WITH FITTINGS SPECIFICALLY DESIGNED FOR USE WITH SEALTIGHT. INSTALL ONLY IN LOCATIONS NOTED ON THE DETAILS ON THE DRAWINGS.

2.4 NONMETALLIC CONDUIT: PVC CONDUIT: SCHEDULE 40 AND SCHEDULE 80, CONSTRUCTED OF POLYVINYL CHLORIDE AND CONFORMING TO NEMA TC-2, FOR DIRECT BURIAL, OR NORMAL ABOVE GROUND USE, UL-LISTED AND IN CONFORMITY WITH NEC ARTICLE 352. FITTINGS FOR PVC CONDUIT SHALL CONFORM TO NEMA TC3 AND SHALL BE SPECIFICALLY MANUFACTURED FOR ELECTRICAL CONDUIT. WATER PIPE FITTINGS WILL NOT BE ACCEPTED.

2.5CONDUCTOR MATERIALS AND ACCESSORIES:

   A. GENERAL USE SINGLE-CONDUCTOR WIRE SHALL BE COPPER, TYPE THWN, UL LISTED FOR GENERAL USE AT A MAXIMUM OF 600 VOLTS AND A MAXIMUM TEMPERATURE OF 75 DEGREES C IN WET LOCATIONS. NUMBER 8 AWG AND LARGER SHALL BE STRANDED. THE MINIMUM WIRE SIZE FOR SINGLE CONDUCTORS AND MC CABLE SHALL BE #12 AWG.

   B. WIRE COLOR CODING:

SYSTEM	PHASE A	PHASE B	PHASE C	NEUTRAL	GROUND
240/120 VAC, 1Ø	BLACK	RED	N/A	WHITE	GREEN

   COLORS SHALL BE INTEGRAL PIGMENTATION COLOR CODING FOR #10 AWG AND SMALLER WIRES, INCLUDING GROUND WIRES. FOR #8 AWG AND LARGER WIRES, COLORED PHASE TAPE SHALL BE APPLIED TO THE WIRE FOR IDENTIFICATION. TAPE SHALL BE APPLIED IN A SPIRAL, HALF-LAP MANNER OVER EXPOSED CONDUCTOR PORTIONS IN PULLBOXES, LOAD CENTERS, WIREWAYS, AND OTHER ENCLOSURES.

   C. WIRE MARKING LABELS: PROVIDE WIRE MARKING LABELS FOR MARKING WIRES TO CONFORM TO PART 3.4, IDENTIFICATION AND MARKINGS. ADHESIVE TYPE LABELS SHALL HAVE AN ADHESIVE BACKING WITH A WHITE BACKGROUND AND BLACK LETTERING EQUAL TO 3M SCOTCH- CODE OR T & B E-Z CODE. MARKERS MAY BE PRE-PRINTED, PRINTED WITH A HAND HELD PRINTER, OR WRITE-ON STYLE. OTHER WIRE MARKING LABELS SUCH AS HEAT SHRINK TUBING OR TY-WRAP TYPE LABELS MAY ALSO BE USED AFTER APPROVAL BY THE ENGINEER. WIRE SHALL BE CLEANED OF OIL, DIRT, AND PULLING COMPOUND BEFORE WIRE MARKERS ARE INSTALLED. ANY HAND PRINTED LABELING SHALL BE LEGIBLE.

2.6 LOAD CENTERS:

   A. ALL ENCLOSURES SHALL HAVE DEAD FRONT CONSTRUCTION & ENCLOSED IN A NEMA 3R RAINTIGHT STEEL CABINET WITH PADLOCKING HASPS.

   B. LOAD CENTERS SHALL HAVE AMPERAGE RATINGS AS SHOWN ON THE DRAWINGS. LUGS SHALL BE OF THE PROPER SIZE TO ACCEPT THE CABLE SHOWN ON DRAWINGS AND SHALL BE UL LISTED AS SUITABLE FOR THE TYPE OF CONDUCTORS SPECIFIED.

   C. BUS BAR CONNECTIONS FOR LOAD CIRCUIT BREAKERS IN LOAD CENTERS SHALL BE DISTRIBUTED PHASE TYPE. THE CURRENT CARRYING PARTS OF BUS ASSEMBLIES AND NEUTRAL BARS SHALL BE PLATED.

   D. ALL LOAD CENTER ENCLOSURES SHALL HAVE A GROUND BUS AND A NEUTRAL BUS. BUSSES SHALL HAVE PROVISIONS FOR A MAIN GROUND CONDUCTOR AND ALL NEUTRAL CONDUCTORS IN THE SIZES NOTED ON DRAWINGS OR REQUIRED BY THE NEC. LOAD CENTER BUSSES SHALL HAVE TERMINATION POINTS OF SUFFICIENT SIZE AND QUANTITY FOR THE NUMBER OF CIRCUITS IN THE LOAD CENTER. NO NEUTRAL WIRE OR GROUND WIRE SHALL BE TRIMMED OR SPLIT TO FIT SMALLER SIZED LUGS.

   E. ALL SUPPORT HARDWARE SHALL BE GALVANIZED OR PLATED STEEL.

   F. LOAD CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK WITH COMMON TRIP ON ALL MULTI-POLE BREAKERS. THEY SHALL HAVE POSITIVE HANDLE INDICATION AND AN INTERNAL TIE MECHANISM WITH OVER-CENTER, TOGGLE-TYPE OPERATING MECHANISMS. USE ONLY PLUG-ON CIRCUIT BREAKERS IN THE LOAD CENTERS WITH THE MINIMUM BREAKER AMPERAGE RATING OF 20 AMPS FOR ANY 1-POLE BREAKER.

   G. MINIMUM UL LISTED INTERRUPTING RATINGS (RMS SYM. AMPS) FOR LOAD CIRCUIT BREAKERS IS LISTED BELOW. MAIN CIRCUIT BREAKERS FOR THE LOAD CENTERS SHALL HAVE THE INTERRUPTING RATINGS NOTED ON THE DRAWINGS.

   240 VOLT MAXIMUM BREAKERS: 15 - 125 AMP = 10,000 AIR

2.7 GROUNDING MATERIAL:

   SEE GROUND ELECTRODE TESTING REQUIREMENTS IN SPECIFICATION, PART 3.5.

1. GROUND RODS: NON-RUSTING, ONE-PIECE OR SECTIONALIZED, COPPER RODS, 3/4 INCH BY 10 FOOT MINIMUM SIZE. COPPER TO BE BONDED TO A STEEL CORE. GROUND RODS SHALL HAVE A MINIMUM COPPER THICKNESS OF 10 MIL. LONGER LENGTH RODS OR SPECIALLY DESIGNED GROUNDING SYSTEMS MAY BE REQUIRED TO OBTAIN THE NEC REQUIRED GROUND RESISTANCE AT EACH INSTALLATION LOCATION.
2. GROUND ELECTRODE CONDUCTOR CONNECTIONS: ALL GROUND ELECTRODE CONDUCTOR CONNECTIONS FOR ALL GROUND ELECTRODE CONDUCTORS ATTACHED TO EACH GROUND ROD OR OTHER GROUNDING ELECTRODE SHALL BE EXOTHERMIC TYPE CONNECTIONS USING MATERIALS UL LISTED FOR DIRECT BURIAL INSTALLATION. MECHANICAL GROUND ELECTRODE CONDUCTOR CLAMPS WILL NOT BE ALLOWED.

PART 3 - EXECUTION

3.1 INSTALLATION OF CONDUITS:

   A. MECHANICALLY FASTEN TOGETHER METAL CONDUITS, ENCLOSURES, AND RACEWAYS FOR CONDUCTORS TO FORM CONTINUOUS ELECTRICAL CONDUCTOR.

   B. CONDUITS SHALL HAVE OPENINGS TEMPORARILY PLUGGED TO EXCLUDE FOREIGN MATERIALS, BE REAMED AFTER CUTTING; HAVE JOINTS CUT SQUARE, AND BUTT SOLIDLY INTO FITTINGS; HAVE THE ENDS TERMINATED IN A PROPER BUSHED FITTING, BE RIGIDLY SUPPORTED SO AS TO PREVENT UNDUE STRESS OR STRAIN ON THE COUPLINGS AND CONNECTORS.

   C. ON ALL METAL CONDUITS, BUSHINGS SHALL BE OF THE INSULATED TYPE. CONDUIT ENTRIES INTO THE TOPS OF ENCLOSURES SHALL USE RAINTIGHT HUBS. CONDUIT ENTRIES INTO THE SIDES OR BACKS OF ENCLOSURES SHALL USE SEALING LOCKNUTS.

   D. ALL CONDUIT SYSTEMS MUST BE INSTALLED COMPLETE BEFORE CONDUCTORS ARE PULLED IN AND BE ELECTRICALLY CONTINUOUS THROUGHOUT.

3.2 CONDUCTOR INSTALLATION:

CONDUCTORS SHALL BE INSTALLED IN CONDUIT, A RACEWAY, BOX OR OTHER ENCLOSURE. NO CONDUCTORS OR CABLES SHALL BE INSTALLED IN CONDUITS, DUCT, OR RACEWAYS UNTIL THE RACEWAY OR CONDUIT SYSTEM HAS BEEN COMPLETED. WHEN INSTALLING CONDUCTORS, USE WIRE-PULLING COMPOUND WHEN INSTALLING ALL WIRING AND SHALL EXERCISE DUE CARE TO PREVENT DAMAGE TO CONDUCTORS OR INSULATION AND REPLACE ALL DAMAGED CABLE. TYPE THWN WIRING WITH THE OUTER NYLON JACKET DAMAGED WILL NOT BE ACCEPTED.

ALL WIRING CONNECTED TO TERMINAL STRIPS, DISTRIBUTION BLOCKS, OR BUSSES SHALL BE CONNECTED WITH SINGLE POINT CONNECTIONS. DOUBLE LUGGING OR SPLITTING WIRE BETWEEN TERMINALS WILL NOT BE ACCEPTED.

3.3 LOAD CENTER AND DISCONNECT SWITCH INSTALLATION:

   A. INSTALLED PLUMB AND LEVEL AND WHEN SURFACE MOUNTED, SHALL BE RIGIDLY SECURED TO WALLS OR RACKS.

   B. ALL WIRING SHALL BE TERMINATED ON MAIN LUGS, BRANCH BREAKER LUGS, NEUTRAL BUSS, OR GROUND BUSS. NO SPLICES SHALL BE MADE IN LOAD CENTERS OR DISCONNECT SWITCHES.

   C. PRIOR TO ACCEPTANCE OF WORK, LOAD CENTER AND DISCONNECT SWITCH DOORS AND TRIMS SHALL WORK PROPERLY AND ALL NAMEPLATES SHALL BE IN PLACE.

   D. ALL LUGS, BOLTS, CLAMPS AND SCREWS SHALL BE TIGHTENED TO MANUFACTURERS SPECIFICATIONS.

3.4 IDENTIFICATION AND MARKINGS:

   A. FOR EACH LOAD CENTER: LEGIBLY FILL OUT THE CIRCUIT SCHEDULE TO INDICATE THE LOADS CONNECTED.

   B. INSTALL ENGRAVED PLASTIC NAMEPLATES ON THE NEW LOAD CENTER AND DISCONNECT SWITCH. THE NAMEPLATES SHALL LIST THE VOLTAGE AND PHASE OF THE EQUIPMENT.

3.5 GROUNDING SYSTEMS AND TESTING:

ALL TESTING SHALL BE SCHEDULED WITH THE TPWD CONSTRUCTION PERSONNEL AND THE PARK STAFF. ALL TESTING SHALL BE WITNESSED BY TPWD CONSTRUCTION PERSONNEL OR THEIR DESIGNATED REPRESENTATIVE. ALL LIFT STATION DEMONSTRATION AND OPERATION BE SCHEDULED AND WITNESSED BY PARK STAFF.

   A. EACH NEW GROUND ELECTRODE WILL BE TESTED BY A TPWD ELECTRICAL INSPECTOR AFTER INSTALLATION USING A GROUND ROD RESISTANCE TESTER EQUAL TO AEMC MODEL #6416 OR USING A FALL-OF-POTENTIAL GROUND RESISTANCE TESTER. THE MAXIMUM RESISTANCE FOR EACH GROUND ELECTRODE SYSTEM SHALL BE LESS THAN 25 OHMS. AFTER THESE GROUND ELECTRODE RESISTANCE TESTS, IF A GROUND ELECTRODE OR COMBINATION OF GROUND ELECTRODES HAS A RESISTANCE HIGHER THAN 25 OHMS, THE CONTRACTOR SHALL ADD A SUPPLEMENTAL GROUNDING TO THE GROUND SYSTEM TO LOWER THIS RESISTANCE BY INSTALLING AND INTERCONNECTING A ADDITIONAL GROUND ELECTRODES. THE ADDITIONAL ELECTRODES SHALL BE INSTALLED WITH A MINIMUM OF 10 FEET AWAY FROM EACH ELECTRODE AND CONNECTED USING A BARE, #6 AWG, COPPER WIRE, EMBED IN COMPACTED BACKFILL SOIL. THE CONTRACTOR SHALL ACCOUNT FOR A MINIMUM OF THREE GROUND ELECTRODES IN A TRIAD CONFIGURATION WITH A PRIMARY ELECTRODE AND TWO SUPPLEMENTAL GROUND ELECTRODES IN THEIR BID, AFTER THE THIRD GROUND ELECTRODE IS INSTALLED RETEST FOR DOCUMENTATION IF THE RESISTANCE REMAINS HIGHER THAN 25 OHMS, CONTACT THE ENGINEER TO VERIFY IF ANY ADDITIONAL ACTION IS REQUIRED. ALL READINGS SHALL BE DOCUMENTED AND SUBMITTED TO THE ENGINEER FOR REVIEW.
   B. AFTER CORRECTIVE MEASURES ARE COMPLETE FOR A GROUND SYSTEM, THE GROUND SYSTEM INSTALLATION SHALL BE RE-TESTED BY THE TPWD ELECTRICAL INSPECTOR WITH A GROUND ELECTRODE TESTER TO VERIFY THE RESISTANCE OF THE SYSTEM. GROUND ELECTRODE RESISTANCE TEST RESULTS WILL BE DOCUMENTED BY THE TPWD ELECTRICAL INSPECTOR AS PART OF ONE OF THE INSPECTION REPORTS FOR THE PROJECT. THESE TEST RESULTS SHALL INCLUDE GROUND SYSTEM RESISTANCE VALUES AND THE WEATHER AND SOIL CONDITIONS PRESENT DURING THE TESTS.
   C. THE CONTRACTOR SHALL ALSO PERFORM VOLTAGE TESTS AFTER ALL ELECTRICAL EQUIPMENT HAS BEEN CONNECTED AND READY TO USE TO ASSURE THAT THE PROPER VOLTAGE IS AVAILABLE AT EACH EXISTING OR NEW LOAD CENTER, BREAKER, AUTOMATIC TRANSFER SWITCH, GENERATOR, OR OTHER ELECTRICAL ITEM.

3.6 ALL ELECTRICAL, OPERATIONAL, AND CONDUCTOR INSULATION TEST SHALL BE WITNESSED BY TPWD CONSTRUCTION PERSONNEL.

   A. TEST INSTALLATION AFTER NEW WIRING IS COMPLETED AND WHEN EQUIPMENT IS CONNECTED AND READY FOR USE.

   B. RESISTANCE BETWEEN CONDUCTORS AND BETWEEN EACH CONDUCTOR AND GROUND SHALL BE TESTED FOR ALL SERVICE ENTRANCE CONDUCTORS AND BRANCH FEEDER CONDUCTORS FOR ALL CONDUCTORS #6 AND LARGER. CONDUCTORS SHALL PASS A 500 VOLT MEGGER TEST PRIOR TO PLACING IN SERVICE WITH A MINIMUM ACCEPTABLE INSULATION RESISTANCE EQUAL TO OR GREATER THAN 100 MEG OHMS.

   C. PERFORM AN OPERATIONAL TEST AFTER ALL LOAD CENTERS, SAFETY SWITCHES, LIFT STATION CONTROL PANELS, AND OTHER ITEMS HAVE BEEN CONNECTED AND READY TO USE. PRIOR TO ENERGIZING ANY NEW LOAD BREAKERS IN THE NEW LOAD CENTERS OR IN THE NEW LIFT STATION CONTROL PANELS TEST THAT THE CORRECT VOLTAGE IS AVAILABLE ON THE BUSS OF THE LOAD CENTER. THEN TEST THAT THE CORRECT VOLTAGE IS AVAILABLE TO SAFETY SWITCHES AND LIFT STATION CONTROL PANELS.

   D. FOR THE NEW LIFT STATION CONTROL PANELS COORDINATE THE OPERATION OF THE LIFT STATIONS WITH PARK PERSONNEL. PERFORM OPERATION AND DEMONSTRATION TESTING FOR EACH LIFT STATION WITH THE NEW CONTROL PANEL. THIS TESTING SHALL INCLUDE DEMONSTRATING THE OPERATION OF EACH FLOAT AND PUMP IN EACH LIFT STATION, THE OPERATION OF ALL OPERATOR CONTROLS, THE OPERATION OF THE HIGH LEVEL ALARM SYSTEM, AND THE ALTERNATION BETWEEN THE TWO PUMPS.

END OF SPECIFICATION

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/06/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

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NEW SEWER LIFT STATION CONTROL PANELS SPECIFICATION AND DESCRIPTION

THIS SPECIFICATION/DESCRIPTION APPLIES TO ALL OF THE NEW LIFT STATION CONTROL PANELS TO BE REPLACED ON THIS PROJECT. THE INTENT IS FOR ALL NEW CONTROL PANELS TO BE CONFIGURED AND WIRED TO SIMPLIFY THE OPERATION AND MAINTENANCE OF THE LIFT STATIONS.

ALL OF THE EXISTING LIFT STATIONS ARE POWERED FROM SINGLE PHASE, 120/240 VAC POWER SOURCES.

ALL WIRING AND INSTALLATION OF COMPONENTS IN THE NEW LIFT STATION CONTROL PANEL SHALL COMPLY WITH THE 2014 EDITION OF THE NEC.

THE NEW CONTROL PANELS SHALL USE RELAY AND PLUG-IN TYPE ALTERNATOR CONTROLS FOR THE OPERATION OF THE LIFT STATION. PROGRAMMABLE LOGIC CONTROLLERS (PLC) OR ELECTRONIC CONTROL BOARDS SHALL NOT BE USED IN THE NEW CONTROL PANELS TO CONTROL ANY FUNCTION OF THE LIFT STATION.

THE NEW CONTROL PANELS SHALL BE BUILT WITH ALL OF THE SAME SIZES AND MODEL NUMBERS OF COMPONENTS SUCH AS CIRCUIT BREAKERS, MOTOR STARTERS, OVERLOAD RELAYS, ALTERNATORS, RELAYS, PUSHBUTTONS, SELECTOR SWITCHES, PILOT LIGHTS, CAPACITORS, RUN TIME METERS, AND ANY OTHER CONTROL OR INDICATING ITEMS IN THE CONTROL PANELS. ALL OF THE COMPONENTS IN THE CONTROL PANEL SHALL BE UL LISTED.

TO MEET TCEQ REGULATIONS THE NEW CONTROL PANELS SHALL BE SUPPLIED WITH TWO SOURCES OF POWER. ONE 240 VAC SOURCE FOR THE ALTERNATING PUMP AND FLOAT SYSTEM AND ONE 120 VAC SOURCE FOR THE HIGH LEVEL ALARM FLOAT AND ALARM DEVICES CIRCUIT.

1. THE EXISTING SEWER LIFT STATIONS IN THE PARK ARE DUPLEX LIFT STATIONS WITH 2 H.P., SINGLE PHASE, 230 VAC PUMPS THAT NEED TO BE CONTROLLED BY ALTERNATING CIRCUITS THAT BALANCE THE RUNNING TIME FOR EACH PUMP MOTOR. THE EXISTING PUMPS ARE MANUFACTURED BY HYDROMATIC THAT ARE CAPACITOR START AND CAPACITOR RUN TYPE PUMPS AT 15 AMPS FULL LOAD. THE EXISTING PUMPS HAVE NO SEAL-LEAK OR OVER-TEMPERATURE CONTACTS TO MONITOR WITH THE NEW CONTROL PANELS.

2. THE EXISTING FLOAT SWITCHES ARE STANDARD, 2-WIRE, MECHANICAL FLOAT SWITCHES RATED FOR SEWER SYSTEMS.

3. THE NEW LIFT STATION CONTROL PANELS SHALL PROVIDED WITH THE FOLLOWING COMPONENTS AND FEATURES:

   a. NEMA 4X, NONMETALLIC ENCLOSURE WITH A DEAD-FRONT DOOR AND A HINGED, LATCHING INTERIOR DOOR FOR MOUNTING THE OPERATOR CONTROLS AND INDICATORS. THE ENCLOSURE SHALL HAVE A PADLOCKING HASP.
   b. POWER DISTRIBUTION BLOCKS FOR THE TWO HOT LEGS OF THE 240 VAC SUPPLY AND THE NEUTRAL OF THE POWER SUPPLY. A GROUND BUSS FOR CONNECTING ALL OF THE GROUND WIRES IN THE CONTROL PANEL. THE POWER DISTRIBUTION BLOCKS AND THE GROUND BUSS SHALL BE RATED FOR THE WIRE SIZES TO BE CONNECTED AND WITH ENOUGH TERMINATION POINTS TO CONNECT ALL OF THE POWER WIRING TAPS, THE NEUTRAL WIRING, AND THE GROUND WIRING WITHOUT DOUBLE LUGGING OR SPLITTING WIRES BETWEEN TERMINAL POINTS.
   c. TERMINAL BLOCK FOR THE HIGH LEVEL ALARM POWER AND DEVICE WIRING THAT IS SEPARATE FROM THE POWER DISTRIBUTION BLOCKS, GROUND BUSS, OR THE BASIN WIRING TERMINAL BLOCK. THIS TERMINAL BLOCK SHALL BE CLEARLY MARKED FOR THE HIGH LEVEL ALARM CIRCUIT AND THE SEPARATE 120 VAC POWER CIRCUIT FOR THE HIGH LEVEL ALARM CIRCUIT.
   d. TERMINAL BLOCKS FOR CONNECTING THE PUMP AND FLOAT WIRING TO THE BASIN. THE TERMINAL BLOCKS SHALL BE MARKED WITH NUMBERS THAT CORRESPOND TO THE WIRE NUMBERS OR TERMINAL NUMBERS SHOWN ON THE SCHEMATIC DIAGRAM FOR THE BASIN WIRING.
   e. CIRCUIT BREAKERS, MOTOR STARTERS, AND OVERLOAD RELAYS FOR THE PUMPS. THESE DEVICES BE SIZED AND RATED FOR THE FULL LOAD RUNNING AMPS OF THE PUMP MOTORS.
   f. CIRCUIT BREAKER FOR THE CONTROL SYSTEM FOR THE ALTERNATING PUMP AND FLOAT SYSTEM.
   g. CIRCUIT BREAKER FOR THE HIGH LEVEL FLOAT AND ALARM SYSTEM.
   h. THE INTERIOR, HINGED COVER SHALL HAVE THE FOLLOWING OPERATOR CONTROLS AND INDICATORS AS A MINIMUM:

1. HAND-OFF-AUTO (HOA) CONTROL SWITCHES FOR EACH PUMP.
2. PUMP RUNNING LIGHTS FOR EACH PUMP.
3. RUN TIME METERS FOR EACH PUMP. PROVIDE MECHANICAL TYPE METERS. DO NOT SUPPLY ELECTRONIC METERS.
4. CONTROL POWER SELECTOR SWITCH.
5. RED, STROBE-TYPE HIGH LEVEL ALARM BEACON AND SONALERT TYPE AUDIBLE ALARM. THE ALARM BEACON CAN BE MOUNTED ON TOP OF THE ENCLOSURE FOR LIFT STATIONS WITHOUT A FENCE. FOR THE LIFT STATIONS WITH FENCES THE ALARM BEACON WILL NEED TO BE A SEPARATE MOUNT TYPE THAT CAN BE MOUNTED AND SUPPORTED FROM RIGID METAL CONDUIT TO RAISE THE BEACON ABOVE THE TOP OF THE FENCE AS DESCRIBED ON THE LIFT STATION DETAILS.
6. HIGH LEVEL ALARM SYSTEM TEST/SILENCE/RESET PUSHBUTTONS AND/OR SELECTOR SWITCHES.

4. THE NEW LIFT STATION CONTROL PANELS SHALL BE PROVIDED WITH A TWO (2) YEAR WORKMANSHIP WARRANTY ON THE INSTALLATION AND WIRING OF THE COMPONENTS OF THE PANELS. THE COMPONENTS OF THE CONTROL PANELS SHALL BE PROVIDED WITH THEIR STANDARD MANUFACTURER'S DEFECT AND FAILURE WARRANTIES.

5. FOR THE NEW LIFT STATION CONTROL PANELS: PROVIDE OPERATION, MAINTENANCE, TROUBLESHOOTING, REPAIR AND SPARE PARTS MANUALS. PROVIDE A MINIMUM OF TWO (2) MANUALS FOR THE PROJECT. PROVIDE EACH MANUAL IN A 3-RING BINDER WITH TABS MARKING EACH MAJOR SECTION OF THE MANUAL. EACH MANUAL SHALL ALSO INCLUDE A CD WITH ALL OF THE INFORMATION IN THE MANUAL INCLUDING LAYOUT AND SCHEMATIC WIRING DIAGRAMS OF THE CONTROL PANEL. ALSO PROVIDE A MINIMUM OF TWO, FULL SIZE PAPER COPIES OF THE SCHEMATIC WIRING DIAGRAM FOR THE LIFT STATION.

6. INSTALL A LAMINATED, PROPERLY SIZED AND LEGIBLE SCHEMATIC DIAGRAM OF THE CONTROL PANEL WIRING ON THE INSIDE OF FRONT DOOR OF THE ENCLOSURE. ATTACH THIS LAMINATED SCHEMATIC DIAGRAM WITH EXTERIOR ADHESIVE TO PROVIDE A PERMANENT INSTALLATION OF THE DIAGRAM.

7. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 2-HOURS OF OPERATION AND MAINTENANCE TRAINING TO TPWD PARK STAFF ON THE NEW LIFT STATION CONTROL PANELS. THIS TRAINING SHALL BE PROVIDED BY A FACTORY TRAINED AND AUTHORIZED TECHNICIAN FOR THE MANUFACTURER OF THE LIFT STATION CONTROL PANELS.

END OF SPECIFICATION

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/08/2020

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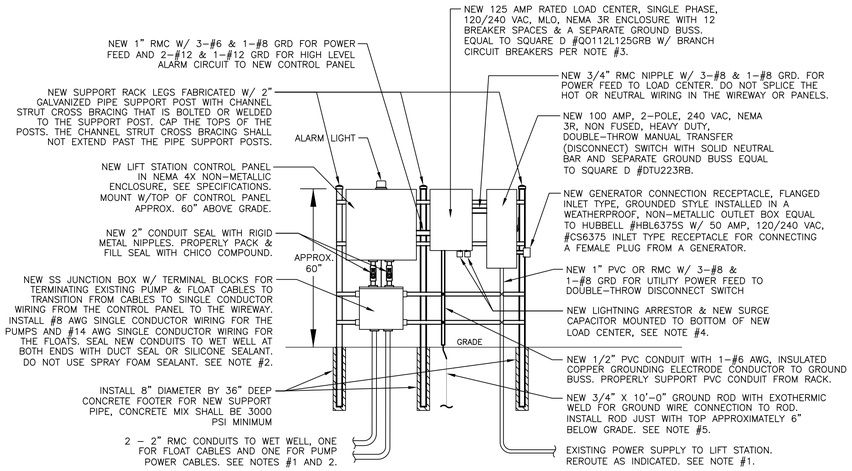
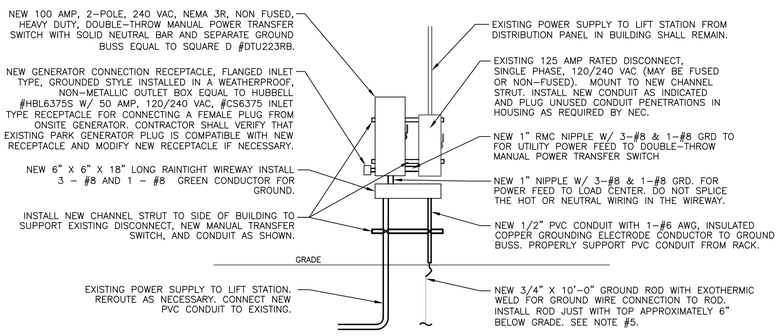


(NOTE: THIS CONSTRUCTION IS INTENDED ONLY FOR LIFT STATIONS WITH NEW POWER/CONTROL RACKS WHERE INDICATED IN DETAILS ON SHEETS C2 AND C3. NOTE THAT LIFT STATION #17 WILL NOT REQUIRE A MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION.)

1 LIFT STATION ELECTRIC EQUIPMENT MOUNTING DETAILS

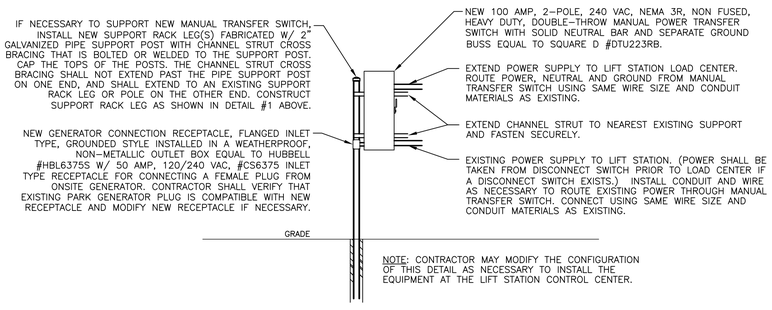
SCALE: N.T.S.



(NOTE: THIS CONSTRUCTION IS INTENDED ONLY FOR LIFT STATIONS 2, 3, AND 11. REFER TO DETAILS 2, 3, AND 11 ON SHEETS C2 AND C3 FOR ADDITIONAL REQUIREMENTS.)

2 LIFT STATION RETROFIT OF GENERATOR CONNECTION AND MANUAL TRANSFER SWITCH FROM EXISTING DISCONNECT

SCALE: N.T.S.



(NOTE: THIS CONSTRUCTION IS INTENDED ONLY FOR LIFT STATIONS 6 AND 14. REFER TO DETAILS 6 AND 14 ON SHEETS C2 AND C3 FOR ADDITIONAL REQUIREMENTS.)

3 RETROFIT OF GENERATOR CONNECTION AND MANUAL TRANSFER SWITCH AT LIFT STATION CONTROL CENTER

SCALE: N.T.S.

LIFT STATION ELECTRICAL NOTES:

THESE NOTES APPLY TO ALL LIFT STATIONS ON THE PROJECT.

1. NEW POWER WIRING TO THE LIFT STATIONS SHALL BE INSTALLED WITHOUT SPLICES FROM THE SOURCE PANELS TO NEW LOAD CENTERS ON THE LIFT STATIONS RACKS EXCEPT FOR GROUND WIRE SPLICES TO PROPERLY GROUND PULL OR JUNCTION BOXES. WHERE POWER WIRING IS TERMINATED IN THE NEW WIREWAY OR JUNCTION BOX ON THE LIFT STATION RACK. THE POWER TERMINAL STRIPS SHALL BE INSTALLED ON SEPARATE DIN RAIL FROM THE LIFT STATION BASIN WIRING AND CLEARLY LABELED AS THE POWER FEED WIRING WITH THE PANEL CIRCUIT NUMBERS MARKED ON THE WIRING AND ON THE TERMINAL STRIPS.

2. NEW TERMINAL STRIPS IN NEW WIREWAYS AND NEW JUNCTION BOXES SHALL BE MOUNTED ON DIN RAILS WITH THE PUMP POWER WIRING INSTALLED ON SEPARATE RAIL AND TERMINAL STRIPS FROM THE FLOAT WIRING. THE POWER AND FLOAT WIRING AND TERMINAL STRIPS SHALL BE CLEARLY LABELED WITH WIRE NUMBERS THAT MATCH THE SCHEMATIC DIAGRAM FOR THE NEW LIFT STATION CONTROL PANELS. THE NEW WIREWAYS AND NEW JUNCTION BOXES SHALL BE PROPERLY GROUNDED.

3. NEW LOAD CENTERS ON THE LIFT STATION RACKS SHALL BE SUPPLIED WITH THE FOLLOWING BRANCH CIRCUIT BREAKERS (UNLESS NEC REQUIRES OTHERWISE):
   a. 2–POLE, 40 AMP FOR THE LIFT STATION CONTROL PANEL
   b. 2–POLE, 20 AMP FOR THE LIGHTNING ARRESTOR
   c. 2–POLE, 20 AMP FOR THE SURGE CAPACITOR
   d. 1–POLE, 20 AMP DEDICATED CIRCUIT FOR THE HIGH LEVEL ALARM CIRCUIT IN THE LIFT STATION CONTROL PANEL

4. ON THE LIFT STATION RACKS: INSTALL A NEW LIGHTNING ARRESTOR AND A NEW SURGE CAPACITOR ON THE BOTTOM OF THE NEW LOAD CENTER. THE NEW LIGHTNING ARRESTOR SHALL BE EQUAL TO DELTA LIGHTNING ARRESTORS MODEL #LA302G THAT IS A COMMERCIAL GRADE, 250 VAC, 4–WIRE ARRESTOR. THE NEW SURGE CAPACITOR SHALL BE EQUAL TO DELTA LIGHTNING ARRESTORS MODEL #CA302RG THAT IS A 250 VAC, 4–WIRE CAPACITOR. BOTH OF THESE DEVICES ARE 4–WIRE DEVICES FOR CONNECTIONS AT A SUBPANEL OR IN A NEW CONTROL PANEL WHERE THE NEUTRAL AND GROUND ARE NOT BONDED.

5. INSTALL A NEW 3/4" X 10' LONG COPPER BONDED GROUND ROD TO SERVE AS THE NEW GROUNDING ELECTRODE AND SHALL MEET NEC 250–56 (REFER TO GROUNDING REQUIREMENTS IN SPECIFICATIONS).

6. TO MAINTAIN THE INTEGRITY OF THE RAINPROOF OR NEMA 4X ENCLOSURES, ALL CONDUIT ENTRIES INTO THE RAINPROOF ENCLOSURES SHALL BE MADE USING THE ENCLOSURE KNOCKOUTS AS MUCH AS POSSIBLE. WEATHERPROOF HUBS SHALL BE USED FOR ALL CONDUIT ENTRIES INTO THE TOPS OF ENCLOSURES. SEALING LOCKNUTS SHALL BE USED FOR ALL CONDUIT ENTRIES INTO THE SIDES, BOTTOMS OR BACKS OF ENCLOSURES.

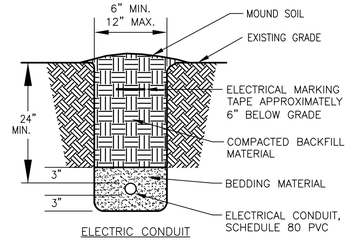
7. GRIND/FILE SMOOTH THE CUT ENDS OR CHANNEL STRUT OR OTHER METAL ITEMS. COAT THE CUT ENDS OF CHANNEL STRUT, WELD POINTS, OR OTHER BARE METAL ITEMS WITH COLD GALVANIZING COMPOUND.

8. INSTALL ADHESIVE OSHA SAFETY SIGNS ON NEW LOAD CENTERS, NEW DISCONNECT SWITCHES, AND NEW CONTROL PANELS. TWO BILINGUAL SIGNS THAT ARE PRINTED IN ENGLISH AND SPANISH ARE REQUIRED ON THE FRONT DOOR OF EACH ENCLOSURE. ONE SIGN SHALL READ "DANGER! HIGH VOLTAGE" AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH RED AND BLACK LETTERING, BE AT LEAST 3–1/2" WIDE BY 5" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS AND BE EQUAL TO SETON #07989. THE SECOND SIGN SHALL BE AN ARC FLASH WARNING SIGN AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH ORANGE AND BLACK LETTERING, BE AT LEAST 6" WIDE BY 3–1/2" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS, AND SHALL BE EQUAL TO SETON #84624 OR #94311.

9. INSTALL AN ENGRAVED NAMEPLATE ON FRONT DOOR OF EACH NEW LIFT STATION CONTROL PANEL WITH THE LIFT STATION NUMBER. ALSO, INSTALL AN ENGRAVED PLASTIC NAMEPLATE ON THE FRONT OF EACH LIFT STATION CONTROL PANEL THAT WARNS THAT TWO SOURCES OF POWER ARE CAPABLE OF FEEDING THE CONTROL PANEL. INSTALL AN ENGRAVED NAMEPLATE ON EACH NEW LOAD CENTER WITH THE VOLTAGE AND PHASE THAT SERVES THE LOAD CENTER. INSTALL AN ENGRAVED NAMEPLATE ON EACH NEW DISCONNECT SWITCH WITH THE VOLTAGE AND PHASE THAT SERVES THE SWITCH. ALSO ON EACH DISCONNECT SWITCH INSTALL ENGRAVED NAMEPLATES THAT IDENTIFY THE UTILITY POWER POSITION AND THE GENERATOR POSITION FOR THE OPERATING HANDLE OF THE SWITCH. INSTALL A SIGN ON OR NEAR THE GENERATOR INLET RECEPTACLES PER NEC 702.7.C FOR A NON–SEPARATELY DERIVED SYSTEM. THE NEW ENGRAVED NAMEPLATES SHALL BE BLACK WITH WHITE LETTERS THAT ARE MINIMUM 1/4" HIGH EXCEPT FOR "TWO SOURCES OF POWER" NAMEPLATES WHICH SHALL BE RED WITH MINIMUM 1/2" HIGH, WHITE LETTERING. ATTACH THE NAMEPLATES TO THE FRONT DOORS OF THE EQUIPMENT WITH CORROSION RESISTANT SCREWS OR RIVETS THAT ARE SHORT ENOUGH THAT THERE CAN BE NO CONTACT WITH LIVE PARTS WITH THE DOORS CLOSED.

10. FOR EACH NEW LOAD CENTER: INSTALL AN ENGRAVED NAMEPLATE ON THE INTERIOR COVER NEXT TO EACH LOAD BREAKER THAT IDENTIFIES THE LOAD SERVED BY EACH BREAKER. THE NAMEPLATES SHALL BE BLACK WITH WHITE LETTERS THAT ARE MINIMUM 1/4" HIGH. ATTACH THE NAMEPLATES TO THE INTERIOR COVER WITH CORROSION RESISTANT SCREWS OR RIVETS THAT ARE SHORT ENOUGH THAT THERE CAN BE NO CONTACT WITH LIVE PARTS WITH THE INTERIOR COVER INSTALLED.

11. MANUAL TRANSFER SWITCH AND GENERATOR CONNECTION: THE MANUAL TRANSFER SWITCH SHALL BE A 100 AMP, 2–POLE, 240 VAC, NEMA 3R, NON FUSED, HEAVY DUTY, DOUBLE–THROW DISCONNECT SWITCH WITH SOLID NEUTRAL BAR AND SEPARATE GROUND BUSS EQUAL TO SQUARE D #DTU223RB. CONTRACTOR SHALL CONFIRM THAT GENERATOR CONNECTION IS COMPATIBLE WITH THE TPWD PORTABLE GENERATOR. CONTRACTOR SHALL CONTACT AND WORK WITH PARK STAFF TO ACCESS AND CONFIRM THE INTENDED GENERATOR CONNECTION.



NON–PAVED AREAS

4 TRENCHING DETAIL

SCALE: N.T.S.

TRENCHING NOTES

1. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED TRENCHING. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION. THE PARK STAFF CAN ASSIST THE CONTRACTOR TO DETERMINE THE APPROXIMATE ROUTING FOR THE EXISTING UNDERGROUND UTILITIES. THE EXACT DEPTHS FOR THE EXISTING UTILITIES IS UNKNOWN. THE CONTRACTOR SHALL TAKE CARE TO LOCATE THESE EXISTING UTILITIES TO AVOID DAMAGE.

2. TRENCHES SHALL BE EXCAVATED TO THE DEPTHS SHOWN ON THIS DETAIL AND THE CONDUIT PLACED AS SHOWN. THE WIDTH OF ANY TRENCHES SHALL BE BETWEEN SIX AND TWELVE INCHES.

3. BEDDING MATERIAL SHALL BE BEDDED AROUND ALL UNDERGROUND CONDUITS. BEDDING & FILL MATERIAL SHALL BE FREE OF MUD, CLAY LUMPS, VEGETATION, DEBRIS AND ROCKS EXCEEDING 1/4" IN THEIR GREATEST DIMENSION WITH NO MORE THAN 10% BY WEIGHT OF THE BEDDING MATERIAL PASSING A #200 SIEVE. THE "FINES" RESULTING FROM THE USE OF A TRENCHING MACHINE MAY ONLY BE USED AS COMPACTED EARTH BACKFILL. THE BEDDING MATERIAL SHALL BE PLACED ABOVE AND BELOW THE CONDUITS PER THE DIMENSIONS ON THE DETAILS.

4. THE COMPACTED EARTH BACKFILL SHALL BE COMPACTED IN 6" LIFTS. HAND TAMPING SHALL BE DONE WITH A MECHANICAL TAMPER. THE TOP OF THE BACKFILLED TRENCH SHALL BE SLIGHTLY MOUNDED ABOVE THE SURROUNDING GRADE TO ALLOW FOR SETTLEMENT.

5. ELECTRICAL MARKING TAPE SHALL BE BURIED AT THE DEPTHS SHOWN IN TRENCHES FOR ELECTRIC CONDUIT.

TEXAS PARKS & WILDLIFE

STATE OF TEXAS — KENNETH L. NEWMAN — 50441 — LICENSED PROFESSIONAL ENGINEER — 04/06/2020

MARTIN DIES, JR. STATE PARK
LIFT STATION REPAIRS
PROJECT NUMBER 1210232

DATE: 04/2020
DESIGNED BY: KLN
DRAWN BY: KLN
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
GENERAL ELECTRICAL DETAILS AND NOTES

SHEET NUMBER
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OF 9

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