CONSTRUCTION PLANS FOR
LAKE 4
OUTLET PIPELINE REPLACEMENT
BOULDER COUNTY, COLORADO

PREPARED FOR:
ST. VRAIN LEFT HAND WATER CONSERVANCY DISTRICT
9595 NELSON ROAD, SUITE 203
LONGMONT, COLORADO 80501

NOTE:
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WRITTEN SCALES ON PLAN ARE FOR FULL SIZED 22" x 34" PLANS AND DO NOT APPLY TO REDUCED PLAN SETS.

CERTIFICATION:
I HEREBY CERTIFY THAT THESE PLANS FOR THE CONSTRUCTION OF LAKE 4 OUTLET PIPELINE REPLACEMENT WERE PREPARED UNDER MY DIRECT SUPERVISION FOR THE OWNERS THEREOF.

I SEAN CRONIN, EXECUTIVE DIRECTOR OF THE ST. VRAIN AND LEFT HAND WATER CONSERVANCY DISTRICT, OWNER, HEREBY ACCEPT THESE THE PLANS FOR THE LAKE 4 OUTLET PIPELINE REPLACEMENT.

I ERIC LANE, DIRECTOR OF BOULDER PARKS AND OPEN SPACE DEPARTMENT, OWNER, HEREBY ACCEPT THESE THE PLANS FOR THE LAKE 4 OUTLET PIPELINE REPLACEMENT.

EXECUTIVE DIRECTOR

DIRECTOR

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Sheet Number: 1
Sheet Title: COVER SHEET

I HEREBY CERTIFY THAT THESE PLANS FOR THE CONSTRUCTION OF LAKE 4 OUTLET PIPELINE REPLACEMENT WERE PREPARED UNDER MY DIRECT SUPERVISION FOR THE OWNERS THEREOF.

BY: MARK A. McLEAN P.E.

I SEAN CRONIN, EXECUTIVE DIRECTOR OF THE ST. VRAIN AND LEFT HAND WATER CONSERVANCY DISTRICT, OWNER, HEREBY ACCEPT THESE THE PLANS FOR THE LAKE 4 OUTLET PIPELINE REPLACEMENT.

I ERIC LANE, DIRECTOR OF BOULDER PARKS AND OPEN SPACE DEPARTMENT, OWNER, HEREBY ACCEPT THESE THE PLANS FOR THE LAKE 4 OUTLET PIPELINE REPLACEMENT.

EXECUTIVE DIRECTOR

DIRECTOR
PLAN & PROFILE - ST. VRAIN CREEK TO STA 4+00

SCALE IN FEET

CONTOUR INTERVAL = 1 FT

PLAN VIEW

ST. VRAIN CREEK TO STA 4+00

LAKE 4 OUTLET PIPELINE REPLACEMENT

NOTE:
- PROVIDE 208V, 100A 1Ø ELECTRICAL SERVICE TO ACCESS MANHOLE #4 INCLUDING CONNECTION TO CITY OF LONGMONT ELECTRIC, BURIED CONDUIT AND UNISTRUT MOUNTED SERVICE DISCONNECT METER AND OUTLETS WITH ENCLOSURES LOCATED ADJACENT TO ACCESS MANHOLE #3.

POINT TABLE

DESCRIPTION | NORTHING | EASTING | STATION
--- | --- | --- | ---
A-FRAME SPILLWAY BOX CULVERT, CUTOFF WALLS AND WING WALLS (SEE A-FRAME RESERVOIR REHABILITATION PLANS) | | | |
CONSTRUCT MEASUREMENT STRUCTURE | | | |
INSTALL 18" 45° BEND W/ THRUST BLOCK | | | |
START DEFLECTING 18" DIA HDPE PIPE (SEE POINT TABLE) | | | |
EXISTING POWER POLE | | | |
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ELEVATION (FT)

STATION (FT)

Alignment - (2) PROFILE

LAT 4 OUTLET TOWER 2

(LAKE 4 DAM REPAIR PLANS)

ACCESS MANHOLE #1

EXISTING GROUND

LINE EXISTING 18" RCP W/ 14" DIA. (DIP) HDPE SDR17

CONNECT TO ACCESS TOWER

(LAKE 4 DAM REPAIR PLANS)

STA. 20+22

EXISTING MANHOLE

STA. 20+85

LAKE 4 OUTLET TOWER 1

NHWL = 5163.00

LAKE 4 DAM OUTLET PIPE

WEST LAKE NHWL = 5152.0

STA. 12+60

FLOOR EL=5129.75

RIM EL=5253.50

PIPE INV EL.=5131.10

PIPE INV EL.=5136.00

(TO BE VERIFIED IN FIELD)

STA. 19+20

BEGIN 14" DIA HDPE LINER PIPE

SEE WESTERN MOBILE LAKE 4 DAM AND RESERVOIR REHABILITATION PLAN SET

PLAN SET

MATCHLINE STA 12+00

ACCESS MANHOLE #1

EXISTING 18" RCP BEND

CONSTRUCT ACCESS MANHOLE #1

PROPOSED WEST LAKE OUTLET WORKS

(BY OTHERS)

PROPOSED WEST LAKE SIPHON DRAINS

PROPOSED WEST LAKE SPILLWAY

(SEE WEST LAKE DAM PLANS)

REMOVE 40 FT OF EXISTING 18" RCP WITH INSITUFORM LINER IF EXISTING LINED RCP WILL NOT ACCEPT HDPE LINER

STA 19+20

BEGIN 14" HDPE LINING

BOULDER COUNTY PARKS & OPEN SPACE

1

5

6

1

5

6

EXISTING M.H

EXISTING

18" RCP

WEST LAKE

NHWL=5152.0

100 FT OF 2" DIA. PVC DRAIN & OUTLET STRUCTURE

LOCATE AND SURVEY EXISTING 18" DIA RCP ACCESS MANHOLE #1 TO LAKE 4 DAM

LOCATE EXISTING 18" DIA RCP AND CONSTRUCT ACCESS MANHOLE #1

4/2017 LOCATE LINE W/ 14" DIA. (DIP) HDPE SDR17

APPROXIMATE EXISTING 18" DIA RCP (2/2017 LOCATE) LINE W/ 14" DIA. (DIP) HDPE SDR17

C STATIONING L

STA 12+60

LOCATE EXISTING 18" DIA RCP BEND

CONSTRUCT ACCESS MANHOLE #1

14" DIA RCP PIPE BEND

CONSTRUCT ACCESS MANHOLE #1

100 FT OF 2" DIA. PVC DRAIN & OUTLET STRUCTURE

EXISTING M.H

EXISTING

18" RCP

WEST LAKE

NHWL=5152.0

100 FT OF 2" DIA. PVC DRAIN & OUTLET STRUCTURE

LOCATE AND SURVEY EXISTING 18" DIA RCP ACCESS MANHOLE #1 TO LAKE 4 DAM
NOTE:
BACKFILL WITH COMPACTED NATIVE MATERIAL FROM EXCAVATION.
COMPACT TO 95% ESTIMATED DENSITY AT ±2% OF OPTIMUM MOISTURE.
NOTE:
BACKFILL WITH COMPACTED NATIVE MATERIAL. FROM RECOMPACTING
COMPACT TO 95% STD PROCTOR DENSITY AT ±2% OF OPTIMUM MOISTURE.

SECTION A PLAN VIEW

ACCESS MANHOLE 4 SECTION VIEW

LOWER CHAMBER SECTION C PLAN VIEW

UPPER CHAMBER SECTION B PLAN VIEW

PROJECTED 9" PVC SCHEDULE 40 EPOXY COATED STEEL TEE OPERATING NUT

BOLTED COUPLING W/ HDPE STIFFENER (3-REQ'D.)

STEM GUIDE W/ FABRICATED GALVANIZED STEEL WALL BRACKET (2-REQ'D.)

NOTE:
BACKFILL WITH COMPACTED NATIVE MATERIAL FROM EXCAVATION.
COMPACT TO 95% STD PROCTOR DENSITY AT ±2% OF OPTIMUM MOISTURE.
4'-7"
2'
AS NOTED
SCALE:
MMC
11
11
of
0155.005.02
DATE:
JUNE 2018
DRAWN BY:
APPROVED BY:
MMC
MMC
SHEET:
JOB NO.
TEL 303.651.1468 FAX 303.651.1469
LONGMONT, CO  80503

SCALE IN FEET
4'
2'
0
11
3
5
TRACING WIRE DETAIL
LAKE 4 OUTLET PIPELINE REPLACEMENT
APPROVED EQUIVALENT
BURY SPLICE KIT, OR
SOLDERLESS, 3M DIRECT

DATE
DESCRIPTION
NO.
MISCELLANEOUS DETAILS
4'.
EXISTING OR NEW
SURFACE FOR REVEGETATION (BY OTHERS).
3.
DEMO STRUCTURE AND PIPE AND DISPOSE OFFSITE.
2.
SIDE OF EVERY JOINT,
FITTING, OR VALVE.
1.
OTHERWISE REQ'D
WITH OSHA OR AS
CONFORMANCE
TRENCH WALLS IN
SLOPE OR BRACE

SCALE IN FEET
4'
2'
0
11
3
4
TYPICAL TRENCH DETAIL
SIZE VARIES
RAW WATER PIPE
8" MIN.

PROPERTY OWNED BY OLIGARCHY IRRIGATION COMPANY.

EXISTING CONCRETE MEASUREMENT STRUCTURE
4. MEASUREMENT STRUCTURE WALL
COORDINATE ACCESS WITH ENGINEER AND PROPERTY OWNER.
3. LAYOUT TO BE APPROVED BY ENGINEER.
2. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO GRATE FABRICATION.
1. DIMENSIONS ARE PLANNED GRATING OUTSIDE DIMENSIONS TO PROVIDE 1/2" CLEARANCE ALL
AROUND.

WARNING TAPE
TO BE INSTALLED MIN. 12"
ABOVE PIPE BEDDING
6" WIDE WARNING TAPE

SCALE IN FEET
6'
3'
0
11
2
12
4.0'
ST. VRAIN CREEK
6" PVC DRAIN
1'

PLANE
HEAD DRYWELL WITH IMRAT 140N
OR APPROVED EQUAL

PROFILE
DRY WELL DETAIL

DI FITTINGS

CENTRIFUGAL LOOPS TO DRAIN
STRAW CONDUCTIVE COPPER TRACER,
WIRE, DESCRIPTIVES TO DIRECT BURNT.

TEST STATION

SOLDERLESS, 30 DIRECT
BURY BURNT WIRES DON'T.
ON APPROVED EQUIVALENT.

TRACING WIRE DETAIL

PIPE STAND DETAIL

NOTE
NOT SOLDERED GALVANIZED (EXCEPT THREAD).

SCALE IN FEET
4.0'
8'
4'
5'-4 1/2" (NOM.) PIECES

NOTE:
1. HOT DIPPED GALVANIZED (EXCEPT THREAD).
2. CONTRACTOR TO SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL BEFORE FABRICATION.
3. LAYOUT TO BE APPROVED BY ENGINEER.
4. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO GRATE FABRICATION.
5. BAND ALL EDGES.
6. EMBEDS AND GRATING SHALL BE HOT-DIPPED GALVANIZED.
7. FASTENERS, ANCHOR, BOLTS, NUTS & WASHERS SHALL BE STAINLESS STEEL.
8. GRATING TO BE INSTALLED FIRMLY IN PLACE USING BAR GRATING ANCHORING CLIPS.
9. BAND ALL EDGES.
10. CONTRACTOR TO SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL BEFORE FABRICATION.
11. HOT DIPPED GALVANIZED (EXCEPT THREAD).

SCALE IN FEET
4.0'
4'-10"
2'-4"
4'-10"
1'-6" 8" SAND BEDDING AROUND
CONNECTOR PIPE
INSTALLED LEVEL
CAST 2" PVC PIPE
BURY BURNT WIRES DON'T
ON APPROVED EQUIVALENT.

PROPOSED CONCRETE
MEASUREMENT STRUCTURE WALL
INSTALL LEVEL
CAST 2" PVC PIPE
BURY BURNT WIRES DON'T
ON APPROVED EQUIVALENT.

SCALE IN FEET
6'
3'
0
11
2
12
4.0'
ST. VRAIN CREEK

MEASURING FLUME STILLING WELL DETAIL

PLAN VIEW
OPEN TO THE SLOPES INTO
SURROUNDING GROUND

SECTION VIEW
EXISTING CONCRETE
DESTRUCTION STRUCTURE

NOTES:
1. DRAIN
CONNECTOR PIPE IN PLACE
PERPENDICULAR
CAST 2" PVC PIPE
CONNECTOR PIPE

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4.0'
8'
4'
5'-4 1/2" (NOM.) PIECES

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SCALE IN FEET
4.0'
4'-10"
2'-4"
4'-10"
1'-6" 8" SAND BEDDING AROUND
CONNECTOR PIPE
INSTALLED LEVEL
CAST 2" PVC PIPE
BURY BURNT WIRES DON'T
ON APPROVED EQUIVALENT.

PROPOSED CONCRETE
MEASUREMENT STRUCTURE WALL
INSTALL LEVEL
CAST 2" PVC PIPE
BURY BURNT WIRES DON'T
ON APPROVED EQUIVALENT.