# CITY OF ALBUQUERQUE

*Planning Department*
Alan Varela, Director

*Mayor Timothy M. Keller*

August 18, 2022

Diego A. Gomez, P.E.
Greenbox Architecture
502 Seventh Street, Suite 203
Oregon City, OR 97045

**RE: Kairos Power Expansion**
**5201 Hawking Drive SE**
**Grading Plans and Drainage Calculations**
**Engineer's Stamp Date: 07/20/22**
**Hydrology File: Q16DA5000A**

Dear Mr. Gomez:

Based upon the information provided in your submittal received 07/26/2022, the Grading Plans and Drainage Calculations are approved for Building Permit, Grading Permit, and for action by the DRB on Platting and Site Plan for Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the Drainage Covenant with Exhibit A for the Existing Retention Pond per Article 6-15(C) of the DPM prior to Permanent Release of Occupancy. Please submit the original copies along with the **$ 25.00** recording fee check made payable to Bernalillo County to Carrie Compton (cacompton@cabq.gov ) on the 4th floor of Plaza de Sol. Please note that Hydrology will need a pdf copy of the recorded Drainage Covenant prior to Hydrology's approval of Permanent Release of Occupancy.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

# City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

**Project Title:** Kairos Power Expansion Building Permit #: _____ Hydrology File #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

City Address: 5201 Hawking Drive SE, Albuquerque, NM 87106

**Applicant:** Greenbox Architecture Contact: Derek Metson

Address: 502 Seventh Street, Suite 203 Oregon City, OR 97045

Phone#: (503) 207-5537 Fax#: _____ E-mail: permits@greenboxpdx.com

**Other Contact:** KAIROS POWER Contact: Lara Gutierrez

Address: 5201 Hawking Drive SE, Albuquerque, NM 87106

Phone#: (505)702-1128 Fax#: _____ E-mail: gutierrez@kairospower.com

**TYPE OF DEVELOPMENT:** ____ PLAT (# of lots) ____ RESIDENCE __X__ DRB SITE ___ ADMIN SITE

IS THIS A RESUBMITTAL? ____ Yes __X__ No

**DEPARTMENT** ____ TRANSPORTATION ____ HYDROLOGY/DRAINAGE

Check all that Apply:

**TYPE OF SUBMITTAL:**

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
__X__ GRADING PLAN
__X__ DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) _____
____ PRE-DESIGN MEETING?

**TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
__X__ SITE PLAN FOR BLDG. PERMIT APPROVAL
__X__ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
__X__ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
__X__ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
__X__ OTHER (SPECIFY) Site Plan - DRB, Major Amendment

DATE SUBMITTED: 7/21/2022 By: Derek Metson

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COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

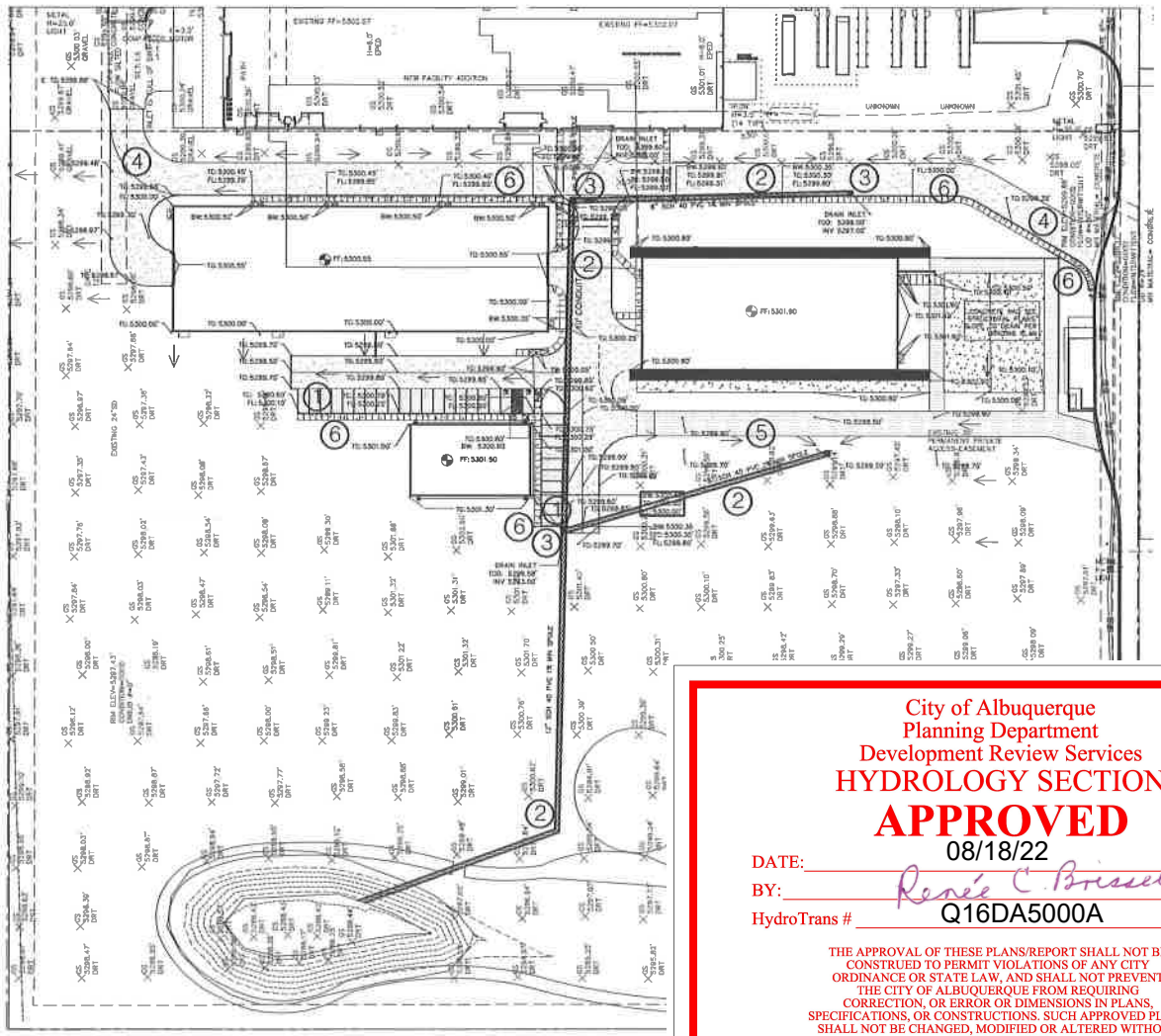
FEE PAID: _____

DIEGO A. GOMEZ
NEW MEXICO
19357
PROFESSIONAL ENGINEER
8/20/22

# KAIROS POWER FACILITY EXPANSION

PROFESSIONAL ENGINEER - STATE OF NEVADA
DMITRIY LASHKEVICH
Exp : 12.31.2023
CIVIL
No. 028082

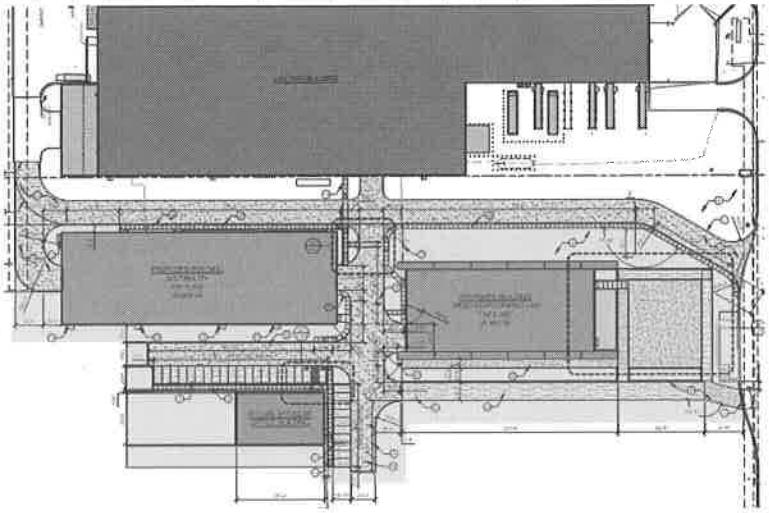
## DRAINAGE CALCULATIONS - JUSTIFICATION OF EXISTING POND CAPACITY FOR DETENTON AND LID



City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
**APPROVED**
DATE: 08/18/22
BY: Renée C. Brissette
HydroTrans # Q16DA5000A

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

# Drainage Calculations - 5201 HAWKING DR, Albuquerque, NM 87106



NEW OR REPLACED LANDSCAPING, LAWN, EARTH - PERVIOUS

NEW OR REPLACED IMPERVIOUS SURFACE (AC, ROOF, CONC)

EXISTING IMPERVIOUS SURFACE DRAINING TO EXISTING POND

NEW COMPACTED GRAVEL - PERVIOUS

SITE ACRAGE: 16.4 ACRES

NEW / REPLACED IMPERVIOUS AREA: 105106 SF

NEW / REPLACED COMPACTED GRAVEL: 20425 SF

EXISTING DEVELOPMENT AREA DRAINING TO POND: 182400 SF

TOPOGRAPHY: FLAT

BREAKDOWN OF SITE AREAS BY SURFACE TYPE

$A_{ROOF1} := 29980\ ft^2$

$A_{ROOF2} := 22345\ ft^2$

$A_{ROOF3} := 5440\ ft^2$

| | | |
|---|---|---|
| $A_{AC\_CONC\_1} := 11117\ ft^2$ | | $A_{EARTH\_1} := 28468\ ft^2$ |
| $A_{AC\_CONC\_2} := 14623\ ft^2$ | | $A_{EARTH\_2} := 9125\ ft^2$ |
| $A_{AC\_CONC\_3} := 5106\ ft^2$ | $A_{GRAVEL\_3} := 3840\ ft^2$ | $A_{EARTH\_3} := 15425\ ft^2$ |
| $A_{AC\_CONC\_4} := 3545\ ft^2$ | $A_{GRAVEL\_4} := 1780\ ft^2$ | $A_{EARTH\_4} := 3700\ ft^2$ |
| $A_{AC\_CONC\_5} := 7550\ ft^2$ | $A_{GRAVEL\_5} := 11235\ ft^2$ | $A_{EARTH\_5} := 12312\ ft^2$ |
| $A_{AC\_CONC\_6} := 5400\ ft^2$ | $A_{GRAVEL\_6} := 3570\ ft^2$ | $A_{EARTH\_6} := 12312\ ft^2$ |

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$A_{imp\_n\_r} := A_{ROOF1} + A_{ROOF2} + A_{ROOF3} + A_{AC\_CONC\_1} + A_{AC\_CONC\_2} + A_{AC\_CONC\_3} + A_{AC\_CONC\_4} + A_{AC\_CONC\_5} + A_{AC\_CONC\_6}$

$A_{imp\_n\_r} = 105106\ ft^2$ TOTAL NEW/REPLACED IMPERVIOUS AREA TO BE DRAINED TO EXISTING POND

$A_{existing\_imp\_pond} := 182400\ ft^2$ EXISTING IMPERVIOUS AREA DRAINWD TO EXISTING POND

$A_{new\_gravel} := A_{GRAVEL\_3} + A_{GRAVEL\_4} + A_{GRAVEL\_5} + A_{GRAVEL\_6}$

$A_{new\_gravel} = 20425\ ft^2$ TOTAL AREA OF NEW GRAVEL PARKING / ROAD

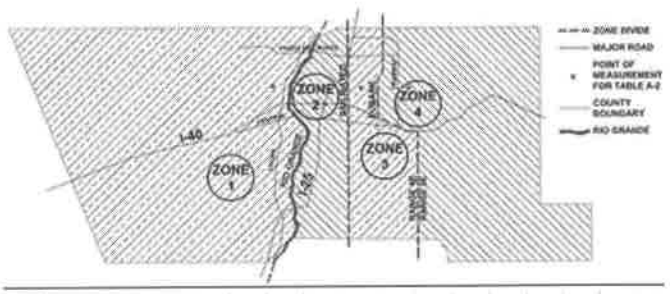
$A_{n\_landscaping} := A_{EARTH\_1} + A_{EARTH\_2} + A_{EARTH\_3} + A_{EARTH\_4} + A_{EARTH\_5} + A_{EARTH\_6}$

$A_{n\_landscaping} = 81342\ ft^2$ TOTAL AREA OF NEW LANDSCAPING AND EARTH

## METHODOLOGY

DRAINAGE AND RETENTION CALCULATIONS ARE PERFORMED IN ACCORDANCE WITH THE DEVELOPMENT PROCESS MANUAL (DPM) OF THE CITY OF ALBUQUERQUE - CHAPTER 6

*FIGURE 6.2.3* **Precipitation Zones**




DEVELOPMENT IS IN ZONE 2 OF THE PRECIPITATION ZONES FIG 6.2.3 DPM

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## *ARTICLE 6-3* SITE DEVELOPMENT

It is beneficial to consider the following items when developing a site:

1. Flood Zone (i.e. Special Flood Hazard Area): May affect finished floor elevation and locations of structures and increase permit requirements. See *Article 8-3*.
2. Downstream Capacity: May require on-site ponding. See *Article 6-7*.
3. Off-site Flows: Are generally accepted and conveyed through the site. See *Article 6-7*.
4. Applicable approved drainage reports and plans: Provide previous approvals for downstream capacity and off-site flows. See *Article 6-7*.
5. Current Topography: Provides accurate depiction of existing conditions.
6. Encumbrances (e.g. utility corridors and easements): May restrict development.
7. Water Quality: Design standard volume and construction runoff. See *Article 6-12*.

DEVELOPMENT IS IN ZONE X OF FEMA FLOOD MAPS. FLOOD ZONE REQUIREMENTS ARE NOT APPLICABLE.

WE WILL USE THE RATIONAL METHOD TO CALCULATE THE RUNOFF INCREASE INTO THE EXISTING DETENTION POND AND VERIFY THAT IT HAS ADEQUATE CAPACITY. WE WILL ALSO VERIFY THAT THE CULVERTS USED TO TRANSMIT THE DRAINAGE TO THE POND ARE ADEQUATELY SIZED.

## *Part 6-10(A)* General Hydraulic Criteria

Closed conduit sections (pipe, box or arch sections) will be designed as flowing full and, whenever possible, under pressure except when the following conditions exist:

1. In some areas of high sediment potential, there is a possibility of stoppage occurring in drains. In situations where sediment may be expected, the City Engineer must be consulted for a determination of the appropriate bulking factor.
2. In certain situations, open channel sections upstream of the proposed closed conduit may be adversely affected by backwater.

If the proposed conduit is to be designed for pressure conditions, the HGL shall not be higher than the ground or street surface, or encroach on the same in a reach where interception of surface flow is necessary; however, in those reaches where no surface flow will be intercepted, an HGL that encroaches on or is slightly higher than the ground or street surface will be acceptable provided that pressure manholes exist or will be constructed.

The stormwater quality volume new development sites are required to manage is the runoff from a 0.62 inch storm. The stormwater quality volume redevelopment sites are required to manage is the runoff from a 0.48 inch storm. A site is defined as a redevelopment site if the land was occupied by an artificial surface or by any structure intended for human occupation, including structures intended for commercial enterprise.

The methodology used in the U.S. Environmental Protection Agency (EPA) Report, Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, TetraTech, April 2014, EPA Publication Number 832-R-14-007, yields runoff values of 0.42 inches for the 90th percentile storm and using the same methodology but generated from HEC-HMS, 0.26 inches for the 80th percentile storm.

To calculate the required SWQV, multiply the impervious area draining to the BMP by 0.42 inches for new development sites and 0.26 inches for redevelopment sites. The calculations of both the required and the provided volume of each BMP must be shown on the Grading and Drainage Plan. Each BMP should be labeled on the Grading and Drainage Plan with the required SWQV and associated water surface elevation and the 100-year water surface elevation. Landscaping of surface BMPs is also required to be noted on the Grading and Drainage Plan.

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## 1.0 CHECKING CAPACITY OF EXJISTING POND - IN ACCORDANCE WITH REQUIREMENTS SET IN ARTICLE 6-12 OF DMP

$i_{100yr} := 0.62\ in$

$i_{BMP\_factor} := 0.42\ in$

Performed for new development (more conservative) including area of existing development to check pond capacity.

$A_{existing\_imp\_pond} = 182400\ ft^2$

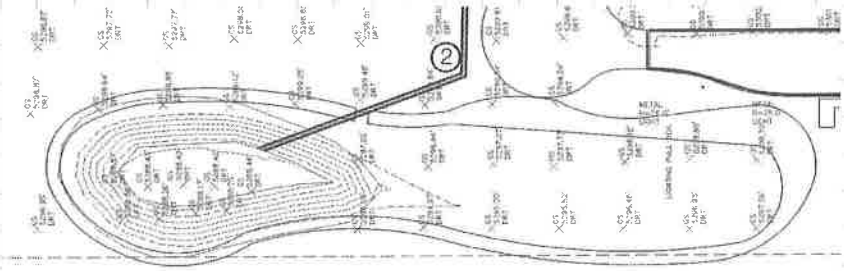
$A_{imp\_n\_r} = 105106\ ft^2$

$A_{imperf\_total} := A_{existing\_imp\_pond} + A_{imp\_n\_r} = 287506\ ft^2$

Total impervious area (e & n) going to pond.

$SWQV_{e\_pond} := A_{imperf\_total} \cdot i_{BMP\_factor} = 10062.71\ ft^3$

Stormwater volume that pond needs to accomodate.




$V_{e\_pond} := 17200\ ft^2 \cdot 7\ ft = 120400\ ft^3$

Volume of existing pond is great enough to retain the stormwater.

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## 1.0 CHECKING CAPACITY OF PROPOSED CULVERTS

$i_{10yr} := 2.78\ in$

DPM requires that 100yr 24hr storm be used - however we are using a more conservative storm intensity of a 15yr 10min tc. The intensity is larger and results in greater flow.

$t_c := 10\ min$ Time of concentration

$C_{earth} := 0.3$ Runoff coefficient for lawn area

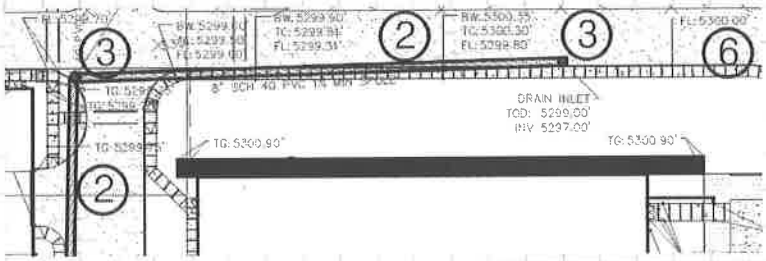
$C_{roof} := 0.95$ Runoff coefficient for roof area

$C_{ac\_conc} := 1$ Runoff coefficient for ac road and conc sidewalk.

$A_{imp\_new} := A_{ROOF1} + A_{ROOF2} + A_{ROOF3} + A_{AC\_CONC\_1} + A_{AC\_CONC\_2} + A_{AC\_CONC\_3} + A_{AC\_CONC\_4} + A_{AC\_CONC\_5} + A_{AC\_CONC\_6}$

$A_{imp\_new} = 105106\ ft^2$ Total impervious area at site after project completion.

## 2.0 Determining Size of Stormwater Pipe




$d_0 := 8\ in$ 8in PVC conduit

$n := 0.009$ Manning Roughness Smooth Wall PVC

$S_{slope} := 0.01$ Slope of pipe

$p_{ratio} := 0.9$ 90% full

$Q_{max} := 1180\ gpm$

$Q_{cb1} := \left(C_{ac\_conc} \cdot A_{AC\_CONC\_1} + C_{roof} \cdot \frac{A_{ROOF2}}{2} + C_{earth} \cdot A_{EARTH\_1}\right) \cdot i_{10yr} = \left(5.246 \cdot 10^4\right)\ gal$

Created with PTC Mathcad Express. See www.mathcad.com for more information.

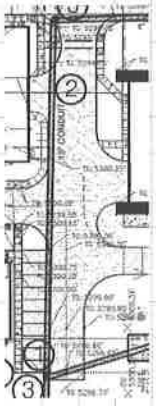
8" conduit is adequate

$d_1 := 10\ in$

$Q_{max1} := 2140\ gpm$

$$Q_{cb1} := \left(C_{ac\_conc} \cdot A_{AC\_CONC\_2} + C_{roof} \cdot \left(\frac{A_{ROOF1}}{2} + \frac{A_{ROOF2}}{2}\right) + C_{earth} \cdot A_{EARTH\_2}\right) \cdot i_{10yr} + Q_{cb1}$$

$Q_{cb1} = \left(1.256 \cdot 10^5\right)\ gal$



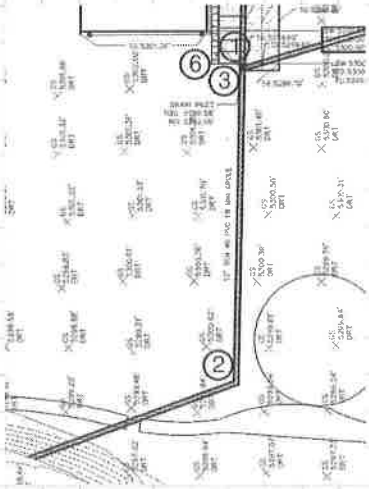

10" conduit is adequate

$d_2 := 12\ in$

$Q_{max2} := 3481\ gpm$

$$Q_{cb2} := \left(C_{ac\_conc} \cdot A_{AC\_CONC\_3} + C_{roof} \cdot \left(\frac{A_{ROOF3}}{2} + \frac{A_{ROOF2}}{2}\right) + C_{earth} \cdot A_{EARTH\_5}\right) \cdot i_{10yr} + Q_{cb1} = \left(1.637 \cdot 10^5\right)\ gal$$

12" conduit is adequate




**SUMMARY**

DRAINAGE CALCULATIONS DEMONSTRATE THAT THE EXISTING POND IS SUFFICIENT TO CAPTURE AND TREAT THE RUNOFF FROM THE EXISTING DEVELOPMENT AS WELL AS THE PROPOSED DEVELOPMENT. CULVERT SIZES ARE APPROPRIATE AS SHOWN ON PLANS.

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# Manning Formula Uniform Pipe Flow at Given Slope and Depth

## Printable Title

### Printable Subtitle

Inputs

| | | |
|---|---|---|
| Pipe diameter, $d_0$ | 12 | in |
| Manning roughness, n | 0.009 | |
| Pressure slope (possibly ? equal to pipe slope), $S_0$ | 0.02 | rise/run |
| Percent of (or ratio to) full depth (100% or 1 if flowing full) | 0.9 | fraction |

Results

| | | |
|---|---|---|
| Flow, Q (See notes) | 3481.0299 | gpm |
| Velocity, v | 10.4178 | ft/sec |
| Velocity head, $h_v$ | 20.2412 | in H2O |
| Flow area | 107.2115 | sq. in. |
| Wetted perimeter | 29.9771 | in |
| Hydraulic radius | 3.5764 | in |
| Top width, T | 7.2000 | in |
| Froude number, F | 1.65 | |
| Average shear stress (tractive force), tau | 0.3721 | psf |

Notes:

**This is the flow and depth *inside* the pipe.**
Getting the flow into the pipe may require significantly higher headwater depth. Add at least 1.5 times the velocity head to get the headwater depth or see my 2-minute tutorial for standard culvert headwater calculations using HY-8.

# Manning Formula Uniform Pipe Flow at Given Slope and Depth

## Printable Title

### Printable Subtitle

Inputs

| | | |
|---|---|---|
| Pipe diameter, $d_0$ | 8 | in |
| Manning roughness, n | 0.009 | |
| Pressure slope (possibly ? equal to pipe slope), $S_0$ | 0.02 | rise/run |
| Percent of (or ratio to) full depth (100% or 1 if flowing full) | 0.9 | fraction |

Results

| | | |
|---|---|---|
| Flow, Q (See notes) | 1180.6769 | gpm |
| Velocity, v | 7.9503 | ft/sec |
| Velocity head, $h_v$ | 11.7882 | in H2O |
| Flow area | 47.6496 | sq. in. |
| Wetted perimeter | 19.9847 | in |
| Hydraulic radius | 2.3843 | in |
| Top width, T | 4.8000 | in |
| Froude number, F | 1.54 | |
| Average shear stress (tractive force), tau | 0.2481 | psf |

Notes:

**This is the flow and depth *inside* the pipe.**
Getting the flow into the pipe may require significantly higher headwater depth. Add at least 1.5 times the velocity head to get the headwater depth or see my 2-minute tutorial for standard culvert headwater calculations using HY-8.

# Manning Formula Uniform Pipe Flow at Given Slope and Depth

## Printable Title

### Printable Subtitle

Inputs

| | | |
|---|---|---|
| Pipe diameter, $d_0$ | 10 | in |
| Manning roughness, n | 0.009 | |
| Pressure slope (possibly ? equal to pipe slope), $S_0$ | 0.02 | rise/run |
| Percent of (or ratio to) full depth (100% or 1 if flowing full) | 0.9 | fraction |

Results

| | | |
|---|---|---|
| Flow, Q (See notes) | 2140.7097 | gpm |
| Velocity, v | 9.2255 | ft/sec |
| Velocity head, $h_v$ | 15.8731 | in H2O |
| Flow area | 74.4524 | sq. in. |
| Wetted perimeter | 24.9809 | in |
| Hydraulic radius | 2.9804 | in |
| Top width, T | 6.0000 | in |
| Froude number, F | 1.60 | |
| Average shear stress (tractive force), tau | 0.3101 | psf |

Notes:

**This is the flow and depth *inside* the pipe.**
Getting the flow into the pipe may require significantly higher headwater depth. Add at least 1.5 times the velocity head to get the headwater depth or see my 2-minute tutorial for standard culvert headwater calculations using HY-8.

**NOAA Atlas 14, Volume 1, Version 5**
**Location name: Albuquerque, New Mexico, USA***
**Latitude: 35.0051°, Longitude: -106.6109°**
**Elevation: 5293.72 ft****
* source: ESRI Maps
** source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

## PF tabular

**PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]**

| Duration | Average recurrence interval (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | 2.15 (1.87-2.47) | 2.78 (2.41-3.20) | 3.71 (3.20-4.26) | 4.43 (3.82-5.06) | 5.41 (4.66-6.19) | 6.17 (5.27-7.06) | 6.96 (5.92-7.97) | 7.79 (6.58-8.90) | 8.92 (7.44-10.2) | 9.79 (8.12-11.2) |
| 10-min | 1.63 (1.42-1.88) | 2.11 (1.84-2.44) | 2.82 (2.44-3.25) | 3.37 (2.90-3.86) | 4.12 (3.54-4.71) | 4.69 (4.01-5.37) | 5.30 (4.50-6.06) | 5.93 (5.00-6.77) | 6.78 (5.66-7.77) | 7.45 (6.18-8.54) |
| 15-min | 1.35 (1.18-1.55) | 1.75 (1.52-2.01) | 2.33 (2.02-2.68) | 2.78 (2.40-3.19) | 3.40 (2.92-3.89) | 3.88 (3.31-4.44) | 4.38 (3.72-5.01) | 4.90 (4.13-5.60) | 5.60 (4.68-6.42) | 6.16 (5.11-7.06) |
| 30-min | 0.910 (0.792-1.04) | 1.18 (1.02-1.35) | 1.57 (1.36-1.81) | 1.87 (1.62-2.15) | 2.29 (1.97-2.62) | 2.61 (2.23-2.99) | 2.95 (2.50-3.37) | 3.30 (2.78-3.77) | 3.77 (3.15-4.32) | 4.15 (3.44-4.75) |
| 60-min | 0.563 (0.490-0.647) | 0.728 (0.633-0.838) | 0.971 (0.841-1.12) | 1.16 (1.00-1.33) | 1.42 (1.22-1.62) | 1.62 (1.38-1.85) | 1.82 (1.55-2.09) | 2.04 (1.72-2.33) | 2.34 (1.95-2.68) | 2.57 (2.13-2.94) |
| 2-hr | 0.320 (0.278-0.374) | 0.410 (0.354-0.478) | 0.539 (0.468-0.630) | 0.644 (0.556-0.748) | 0.788 (0.675-0.912) | 0.904 (0.769-1.04) | 1.03 (0.865-1.18) | 1.15 (0.964-1.33) | 1.33 (1.10-1.53) | 1.47 (1.21-1.70) |
| 3-hr | 0.226 (0.198-0.262) | 0.287 (0.250-0.333) | 0.375 (0.327-0.436) | 0.445 (0.386-0.514) | 0.542 (0.467-0.626) | 0.619 (0.530-0.713) | 0.702 (0.597-0.807) | 0.789 (0.665-0.908) | 0.908 (0.758-1.05) | 1.01 (0.830-1.16) |
| 6-hr | 0.132 (0.116-0.152) | 0.165 (0.145-0.191) | 0.212 (0.187-0.245) | 0.249 (0.219-0.286) | 0.300 (0.261-0.344) | 0.339 (0.293-0.388) | 0.381 (0.327-0.436) | 0.423 (0.361-0.484) | 0.482 (0.408-0.553) | 0.530 (0.444-0.609) |
| 12-hr | 0.073 (0.064-0.082) | 0.091 (0.081-0.104) | 0.115 (0.102-0.130) | 0.134 (0.118-0.151) | 0.160 (0.140-0.180) | 0.179 (0.157-0.202) | 0.200 (0.173-0.225) | 0.220 (0.190-0.248) | 0.249 (0.212-0.281) | 0.271 (0.230-0.307) |
| 24-hr | 0.041 (0.037-0.046) | 0.052 (0.046-0.058) | 0.064 (0.058-0.072) | 0.075 (0.067-0.083) | 0.088 (0.079-0.099) | 0.099 (0.088-0.110) | 0.110 (0.097-0.123) | 0.121 (0.106-0.135) | 0.136 (0.119-0.151) | 0.147 (0.128-0.164) |
| 2-day | 0.022 (0.020-0.024) | 0.027 (0.025-0.031) | 0.034 (0.031-0.038) | 0.039 (0.035-0.044) | 0.047 (0.042-0.052) | 0.052 (0.047-0.058) | 0.058 (0.051-0.064) | 0.063 (0.056-0.070) | 0.071 (0.063-0.079) | 0.077 (0.067-0.085) |
| 3-day | 0.016 (0.014-0.017) | 0.020 (0.018-0.022) | 0.024 (0.022-0.027) | 0.028 (0.025-0.031) | 0.033 (0.030-0.036) | 0.037 (0.033-0.040) | 0.040 (0.037-0.044) | 0.044 (0.040-0.048) | 0.049 (0.044-0.054) | 0.053 (0.047-0.058) |
| 4-day | 0.013 (0.012-0.014) | 0.016 (0.015-0.017) | 0.019 (0.018-0.021) | 0.022 (0.020-0.024) | 0.026 (0.024-0.028) | 0.029 (0.027-0.031) | 0.032 (0.029-0.034) | 0.035 (0.032-0.037) | 0.038 (0.035-0.042) | 0.041 (0.038-0.045) |
| 7-day | 0.008 (0.008-0.009) | 0.010 (0.010-0.011) | 0.013 (0.012-0.014) | 0.014 (0.013-0.016) | 0.017 (0.016-0.018) | 0.019 (0.017-0.020) | 0.020 (0.019-0.022) | 0.022 (0.020-0.024) | 0.024 (0.022-0.026) | 0.026 (0.023-0.028) |
| 10-day | 0.006 (0.006-0.007) | 0.008 (0.007-0.009) | 0.010 (0.009-0.011) | 0.011 (0.010-0.012) | 0.013 (0.012-0.014) | 0.015 (0.013-0.016) | 0.016 (0.015-0.017) | 0.017 (0.016-0.019) | 0.019 (0.017-0.020) | 0.020 (0.019-0.022) |
| 20-day | 0.004 (0.004-0.004) | 0.005 (0.005-0.006) | 0.006 (0.006-0.007) | 0.007 (0.007-0.008) | 0.008 (0.008-0.009) | 0.009 (0.008-0.010) | 0.010 (0.009-0.010) | 0.010 (0.010-0.011) | 0.011 (0.010-0.012) | 0.012 (0.011-0.013) |
| 30-day | 0.003 (0.003-0.004) | 0.004 (0.004-0.004) | 0.005 (0.005-0.005) | 0.006 (0.005-0.006) | 0.006 (0.006-0.007) | 0.007 (0.006-0.007) | 0.007 (0.007-0.008) | 0.008 (0.007-0.008) | 0.008 (0.008-0.009) | 0.009 (0.008-0.009) |
| 45-day | 0.003 (0.002-0.003) | 0.003 (0.003-0.004) | 0.004 (0.004-0.004) | 0.004 (0.004-0.005) | 0.005 (0.005-0.005) | 0.005 (0.005-0.006) | 0.006 (0.005-0.006) | 0.006 (0.006-0.006) | 0.006 (0.006-0.007) | 0.006 (0.006-0.007) |
| 60-day | 0.002 (0.002-0.002) | 0.003 (0.003-0.003) | 0.003 (0.003-0.004) | 0.004 (0.004-0.004) | 0.004 (0.004-0.005) | 0.005 (0.004-0.005) | 0.005 (0.005-0.005) | 0.005 (0.005-0.006) | 0.005 (0.005-0.006) | 0.006 (0.005-0.006) |

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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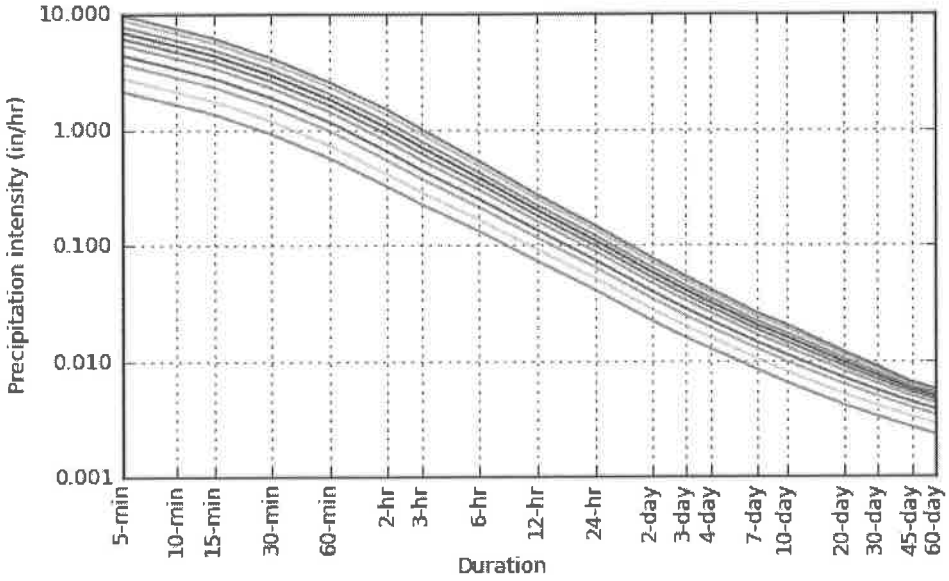
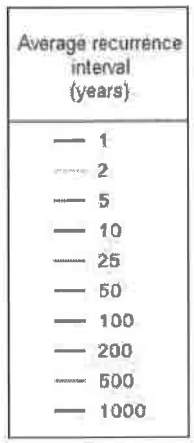
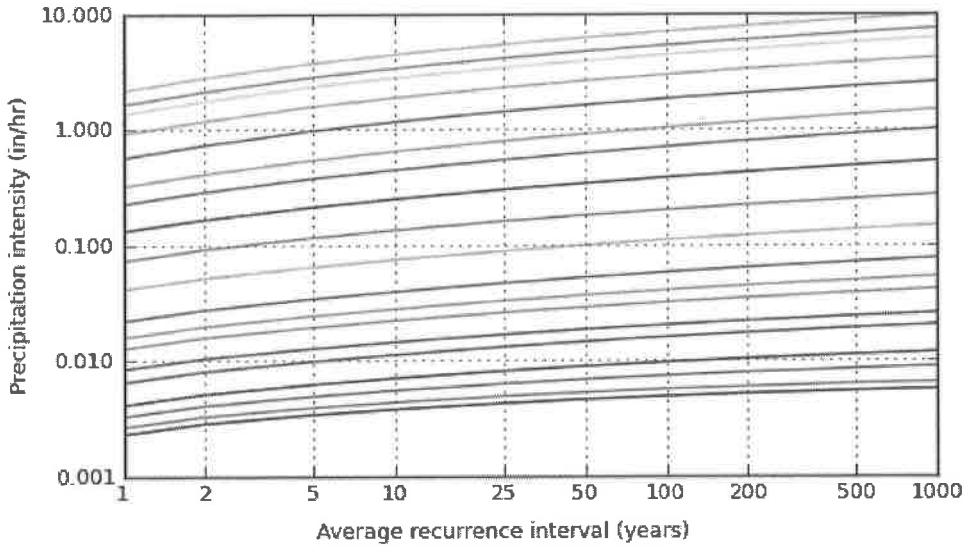
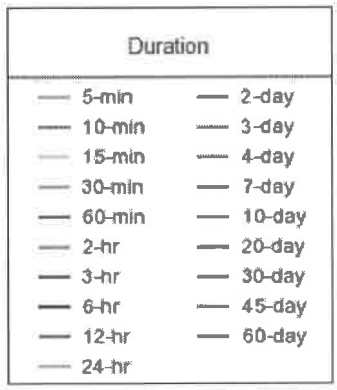
## PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 35.0051°, Longitude: -106.6109°




NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Sat Jul 2 14:43:17 2022

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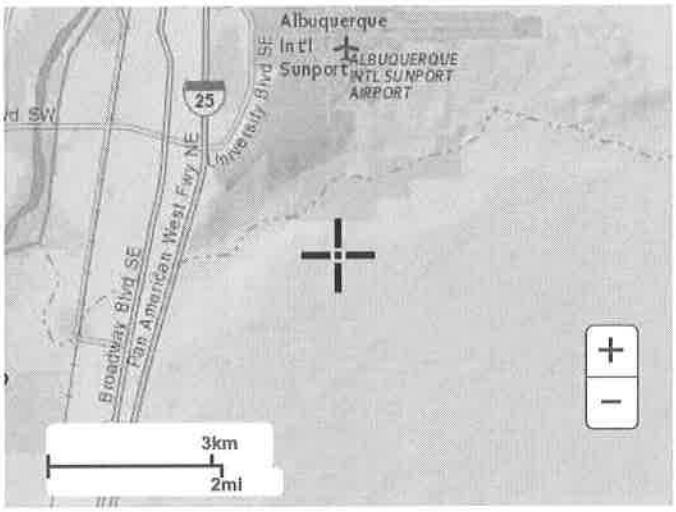
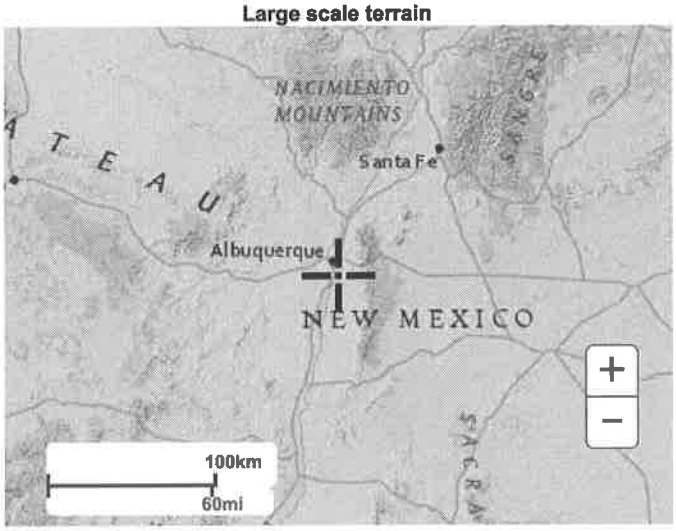
## Maps & aerials

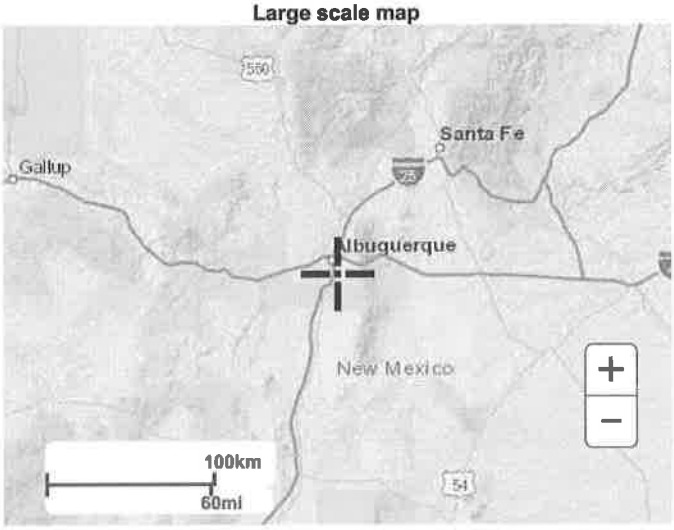
**Small scale terrain**



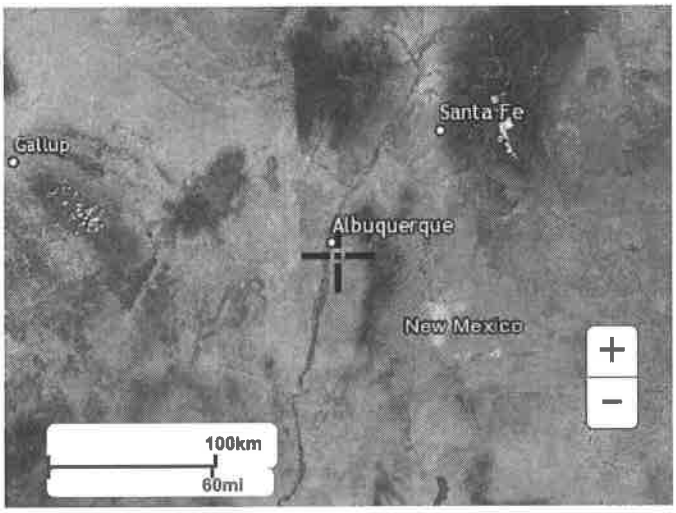

**Large scale terrain**




**Large scale map**




**Large scale aerial**

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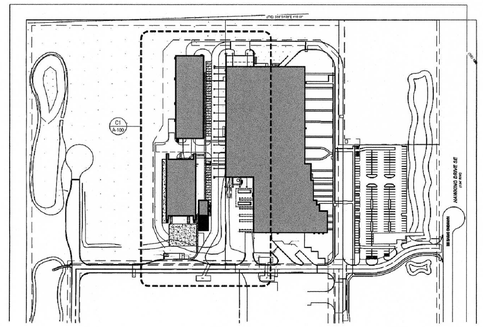
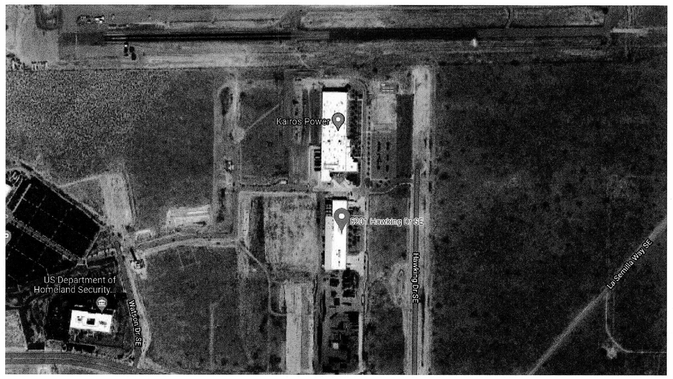
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

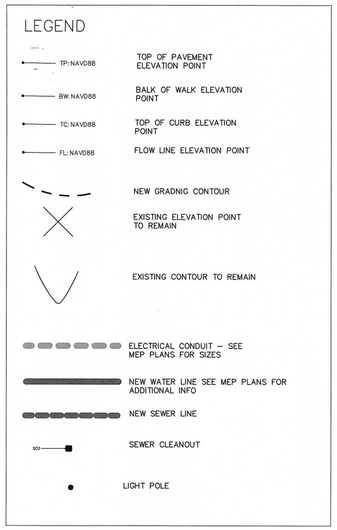
Disclaimer






1 VICINITY MAP

Scale: NTS




# KAIROS POWER FACILITY CIVIL PLANS
# 5201 HAWKING DR, ALBUQUERQUE, NM

GENERAL CONTRACTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT CITY OF ALBUQUERQUE, NEW MEXICO STANDARD PLANS AND SPECIFICATIONS..
2. EXISTING GROUND CONTOURS BASED ON OVERALL GRADING PLAN PREPARED BY MATTHEW F SATCHES DATED SEPTEMBER 2020 NO 24572. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
3. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATION BY OBTAINING UTILITY LOCATE PRIOR TO BEGINNING CONSTRUCTION. EXERCISE CAUTION DURING EXCAVATION.
4. VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES ENCOUNTERED DURING CONTRACTION. RECORD LOCATION AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS–BUILD DRAWINGS.
5. ELEVATION POINTS SHOWN ARE BASED ON NAVD88 DATUM.
6. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS AND/OR IN ACCORDANCE WITH COUNTY OF SACRAMENTO STANDARDS..
7. THE CONTRACTOR SHALL FOLLOW ALL CITY OF ALBUQUERQUE REGULATION FOR NOISE HOURS OF OPERATIONS AND DUST CONTROL.
8. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OF OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS PERMITS ARE OBTAINED BY THE CONTRACTOR, INCLUDING, BUT NOT LIMITED TO, THOSE REQUIRED BY COUNTY OF SACRAMENTO STORM WATER PLAN REVIEW OFFICE. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM AN EXCAVATION ONTO ROADWAYS., CONTRACTOR SHALL PROVIDE A DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF NECESSARY PERMITS AND APPROVALS TO THE MOA RIGHT OF WAY PERMIT OFFICE.
9. KEEP SITE FREE OF CLUTTER.
10. MINIMIZE OFF–SITE VEHICLE TRACKING OF SEDIMENTS. SWEEP SITE ENTRANCE AND EXIT DURING CONSTRUCTION WHEN SOILS ACCUMULATE TO DEPTHS GREATER THAN ONE–FOURTH INCH. WATER EXPOSED SOILS AS NECESSARY TO CONTROL GENERATION OF DUST. CONSTRUCTION ACTIVITIES SHALL BE MONITORED ON A DAILY BASIS TO DETERMINE IF TRACKING OF DIRT AND DEBRIS ONTO THE ADJACENT ROADWAYS HAS OCCURRED. ANY NECESSARY CLEANUP SHALL BE ACCOMPLISHED ON A DAILY BASIS.
11. REVISIONS THAT ALTER THE REVIEWED AND APPROVED DESIGN INTENT REFLECTED IN THIS SET OF SIGNED CONSTRUCTION DRAWINGS MUST BE SUBMITTED TO CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ADJUSTMENTS NECESSARY TO ACCOMMODATE FIELD CONDITIONS MAY BE MADE IF SUCH ADJUSTMENTS ARE WITHIN THE SCOPE OF THE DESIGN INTENT AND ARE APPROVED BY THE ENGINEER OF RECORD.
12. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR PRECISE LOCATIONS OF ALL STRUCTURES AND FURNITURE.
13. CONTRACTOR SHALL REFER TO THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR SIZES AND TYPES OF UTILITY CONNECTIONS.
14. ALL MEANS AND METHODS OF CONSTRUCTION ARE AT THE DISCRETION OF THE CONTRACTOR AND COUNTY.
15. ALL EARTHWORK SHORING AND STRUCTURAL SHORING IS BY CONTRACTOR.

SHEET INDEX


| SHEET NO. | SHEET TITLE |
|---|---|
| COVER | COVER |
| C1 | EXISTING SITE CONDITIONS |
| C2 | PROPOSED SITE CONDITIONS / GRADING & DRAINAGE |
| C3 | FINE GRADING PLAN 1 OF 3 |
| C4 | FINE GRADING PLAN 2 OF 3 |
| C5 | FINE GRADING PLAN 3 OF 3 |
| C6 | EROSION AND SEDIMENT CONTROL PLAN / HOUSE KEEPING PRACTICES |
| C7 | CIVIL DETAILS 1 |
| C8 | CIVIL DETAILS 2 |
| C9 | CIVIL DETAILS 3 |
| C10 | UTILITY PLANS |



Greenbox Architecture
502 SEVENTH STREET, SUITE 203
OREGON CITY, OREGON 97045

RPM TEAM


PROFESSIONAL ENGINEER STATE OF NEW MEXICO
DMITRIY LASHKEVICH
Exp : 12.31.2023
CIVIL
No. 028082

DIEGO A. GOMEZ
NEW MEXICO
19357
7/20/22
PROFESSIONAL ENGINEER

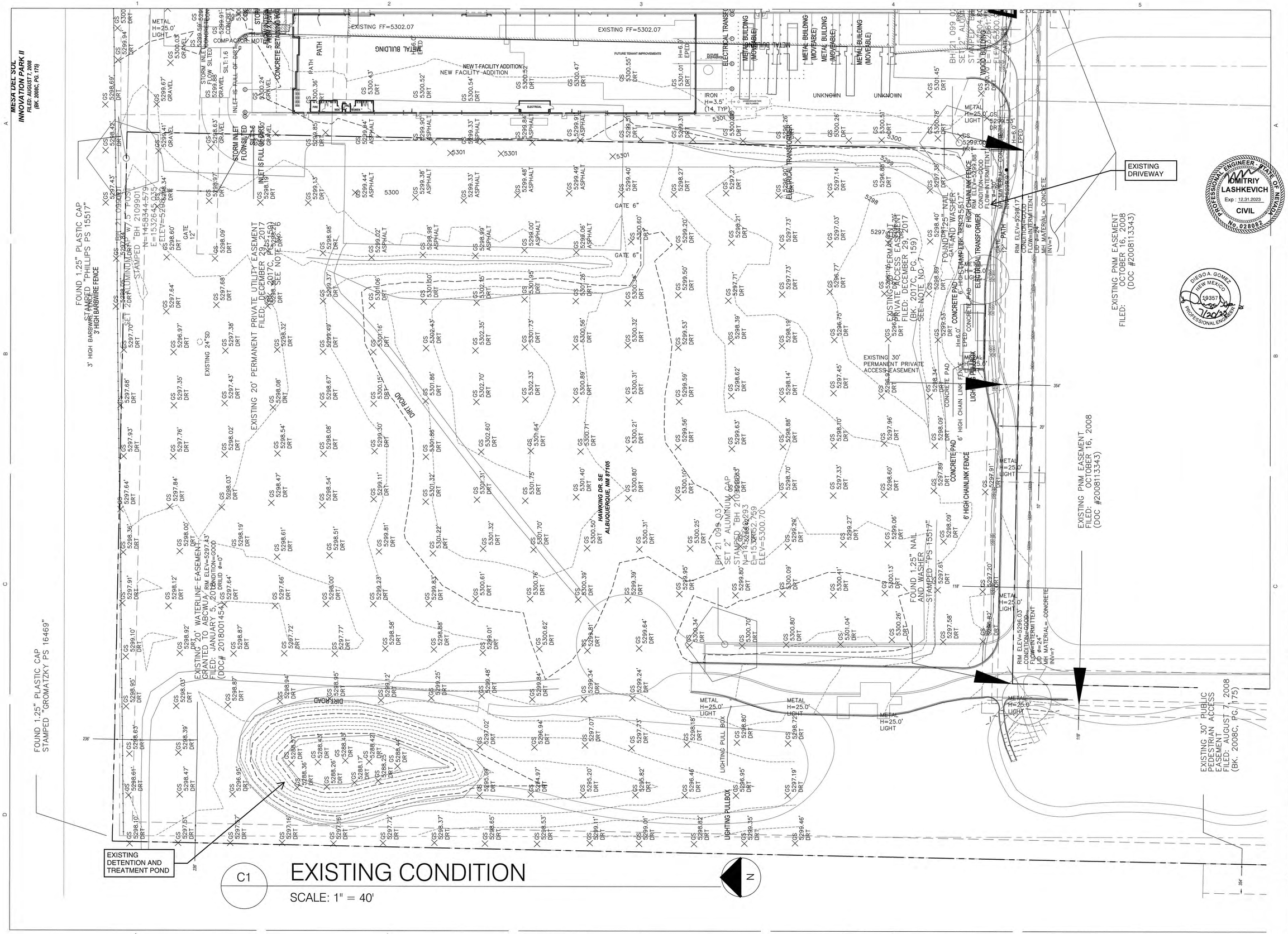
KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATION PARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATION PARK II) CONT 19.4161 AC

EXISTING CONDITIONS

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C1




C1

# EXISTING CONDITION

SCALE: 1" = 40'

Greenbox Architecture
502 SEVENTH STREET, SUITE 203
OREGON CITY, OREGON 97045

RPM TEAM

PROFESSIONAL ENGINEER STATE OF NEVADA
DMITRIY LASHKEVICH
Exp: 12.31.2023
CIVIL
No. 028082

DIEGO A. GOMEZ
NEW MEXICO
19357
PROFESSIONAL ENGINEER
7/20/22

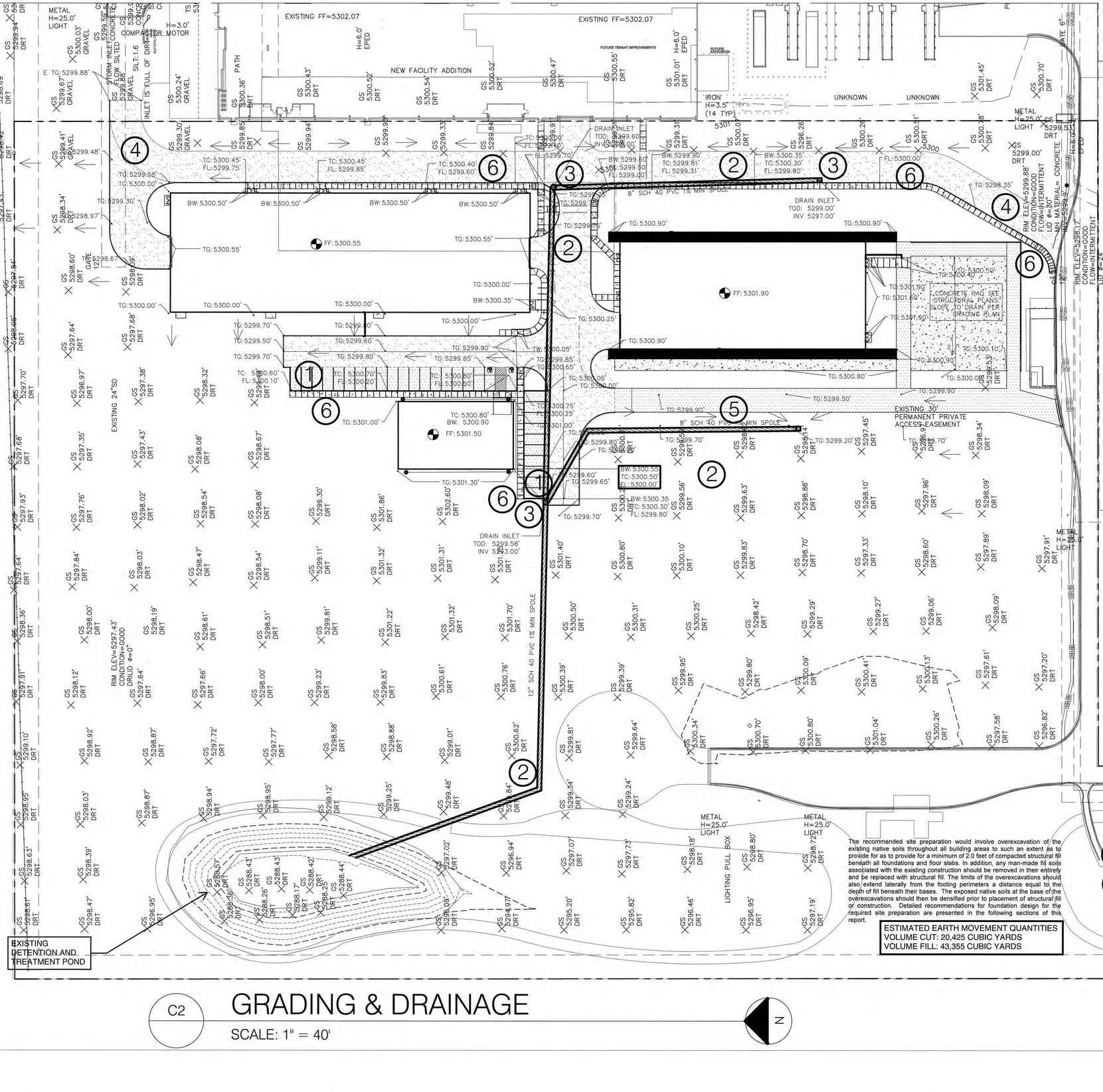
# KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

## EXISTING CONDITIONS

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C1




CLEARING AND GRUBBING :

A. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS PRESENT CONDITION. ALL EXISTING PUBLIC IMPROVEMENTS SHALL BE PROTECTED. ANY IMPROVEMENT DAMAGED SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE LOCAL JURISDICTION WITH NO EXTRA COMPENSATION.

B. IF APPLICABLE, ALL ABANDONED BUILDING AND FOUNDATIONS, TREE (EXCEPT THOSE SPECIFIED TO REMAIN FOR LANDSCAPING PURPOSE), FENCES, VEGETATION AND ANY SURFACES DEBRIS SHALL BE REMOVED AND DISPOSED OFF THE SITE BY THE CONTRACTOR.

C. IF APPLICABLE, ALL ABANDONED SEPTIC TANK AND ANY OTHER SUBSURFACE STRUCTURE EXISTING IN PROPOSED DEVELOPMENT AREAS SHALL BE REMOVED PRIOR TO ANY GRADING OR FILL OPERATION. ALL APPURTENANT DRAIN FIELDS AND OTHER CONNECTING LINES MUST ALSO BE TOTALLY REMOVED.

D. IF APPLICABLE, ALL ABANDONED UNDERGROUND IRRIGATION OR UTILITY LINES SHALL BE REMOVED OR DEMOLISHED. THE APPROPRIATE FINAL DISPOSITION OF SUCH LINES DEPEND UPON THEIR DEPTH AND LOCATION AND THE METHOD OF REMOVAL OR DEMOLITION SHALL BE DETERMINED BY THE SOIL ENGINEER. ONE OF THE FOLLOWING METHODS WILL BE USED;

1. EXCAVATE AND TOTALLY REMOVE UTILITY LINE FROM THE TRENCH.
2. EXCAVATE AND CRUSH THE UTILITY LINE IN THE TRENCH.
3. CAP THE ENDS OF THE UTILITY LINE WITH CONCRETE TO PREVENT THE ENTRANCE OF WATER. THE LOCATIONS AT WHICH THE UTILITY LINE WILL BE CAPPED WILL BE DETERMINED BY THE UTILITY DISTRICT ENGINEER. THE LENGTH OF THE CAP SHALL NOT BE LESS THAN FIVE FEET AND THE CONCRETE MIXED EMPLOYED SHALL HAVE MINIMUM SHRINKAGE.

EXCAVATION/TRENCHING :

A. UPON COMPLETION OF THE SITE PREPARATION, THE CONTRACTOR SHALL MAKE EXCAVATION TRENCHING FOR UTILITIES IN ACCORDANCE WITH THE CIVIL UTILITY PLANS, MEP PLANS, ALL FILL AND TRENCH RESTORATION SHALLBE IN ACCORDANCE WITH THE SOILS REPORT,BY GEOTEST INC., ROBERT D BOOTH.

SEASONAL LIMITS AND DRAINAGE CONTROL :

FILL MATERIAL SHALL NOT BE PLACED, SPREAD OR COMPACTED WHILE IT IS AT AN UNSUITABLY HIGH MOISTURE CONTENT OR DURING OTHERWISE UNFAVORABLE CONDITIONS. WHEN THE WORK IS INTERRUPTED FOR ANY REASON THE FILL OPERATIONS SHALL NOT BE RESUMED UNTIL FIELD TEST PERFORMED BY THE SOILS ENGINEER INDICATE THAT THE MOISTURE CONDITIONS IN AREAS TO BE FILLED ARE AS PREVIOUSLY SPECIFIED. ALL EARTH MOVING AND WORKING OPERATIONS SHALL BE CONTROLLED TO PREVENT WATER FROM RUNNING INTO EXCAVATED AREAS. ALL EXCESS WATER SHALL BE PROMPTLY REMOVED AND THE SITE KEPT DRY.

DUST CONTROL :

THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY FOR THE ALLEVIATION OR PREVENTION OF ANY DUST NUISANCE ON OR ABOVE THE SITE CAUSED BY THE CONTRACTOR'S OPERATION EITHER DURING THE PERFORMANCE OF THE GRADING OR RESULTING FROM THE CONDITION IN WHICH THE CONTRACTOR LEAVES THE SITE. THE CONTRACTOR SHALL ASSUME ALL LIABILITY INCLUDING COURT COST OF CO-DEFENDANTS FOR ALL CLAIMS RELATED TO DUST OR WIND-BLOWN MATERIALS ATTRIBUTABLE TO HIS WORK. COST FOR THIS ITEMS OF WORK IS TO BE INCLUDED IN THE EXCAVATION ITEM AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

INDEMNITY :

THE CONTRACTOR WILL HOLD HARMLESS, INDEMNITY AND DEFEND THE ENGINEER, THE OWNER AND HIS CONSULTANTS AND EACH OF THEIR OFFICERS AND EMPLOYEES AND AGENTS, FROM ANY AND ALL LIABILITY CLAIMS, LOSSES OR DAMAGE ARISING OR ALLEGED TO HEREIN, BUR NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, THE ARCHITECT, THE ENGINEER AND HIS CONSULTANTS AND EACH OF THEIR OFFICERS AND EMPLOYEES AND AGENTS.

SAFETY :

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

THE DUTY OF THE ENGINEERS TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.

LEGEND

- TP/TG:NAVD88 — NEW TOP OF PAVEMENT OR TOP OF GRADE ELEVATION POINT
- BW:NAVD88 — NEW BACK OF WALK ELEVATION POINT (IF E IS INDICATED WF)
- TC:NAVD88 — NEW TOP OF CURB ELEVATION POINT (IF E IS INDICATED WF)
- FL:NAVD88 — NEW FLOW LINE ELEVATION POINT (IF E IS INDICATED WF)
- NEW GRADING CONTOUR
- EXISTING ELEVATION POINT TO REMAIN
- EXISTING CONTOUR TO REMAIN
- NEW ELEVATION CONTOUR
- NEW DRAINAGE CONDUIT PVC SCH 40. SIZE PER PLAN.
- NEW DRAINAGE INLET 24"X24"X36"D.

The recommended site preparation would involve overexcavation of the existing native soils throughout all building areas to such an extent as to provide for as to provide for a minimum of 2.0 feet of compacted structural fill beneath all foundations and floor slabs. In addition, any man-made fill soils associated with the existing construction should be removed in their entirety and be replaced with structural fill. The limits of the overexcavations should also extend laterally from the footing perimeters a distance equal to the depth of fill beneath their bases. The exposed native soils at the base of the overexcavations should then be densified prior to placement of structural fill or construction. Detailed recommendations for foundation design for the required site preparation are presented in the following sections of this report.

ESTIMATED EARTH MOVEMENT QUANTITIES
VOLUME CUT: 20,425 CUBIC YARDS
VOLUME FILL: 43,355 CUBIC YARDS

1. GRAVEL PARKING TO ASPHALT ROAD - SEE DETAIL 1 ON SHEET C7.
2. DRAINAGE CONDUIT SEE DETAILS 12 & 13 ON CB.
3. DRAINAGE INLET DETAIL 15, CB.
4. ASPHALT ROAD DETAIL 7 ON SHEET C7
5. GRAVEL ROAD DETAIL 8 ON SHEET C7
6. CONCRETE SIDEWALK DETAIL 10 ON SHEET C7. FOR THE CURB REFER TO DETAIL 11 ON C7.

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 08/18/22
BY: Renée C. Brissette
HydroTrans # Q16DA5000A
THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO BE A VIOLATION OF ANY FEDERAL ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS/REPORT, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

C2 GRADING & DRAINAGE
SCALE: 1" = 40'

N

Greenbox Architecture
502 SEVENTH STREET, SUITE 203
OREGON CITY, OREGON 97045

RPM TEAM

DMITRIY LASHKEVICH
Exp : 12.31.2023
CIVIL
NO 023082
PROFESSIONAL ENGINEER
STATE OF NEW MEXICO

DIEGO A. GOMEZ
NEW MEXICO
19357
12/13/22
PROFESSIONAL ENGINEER

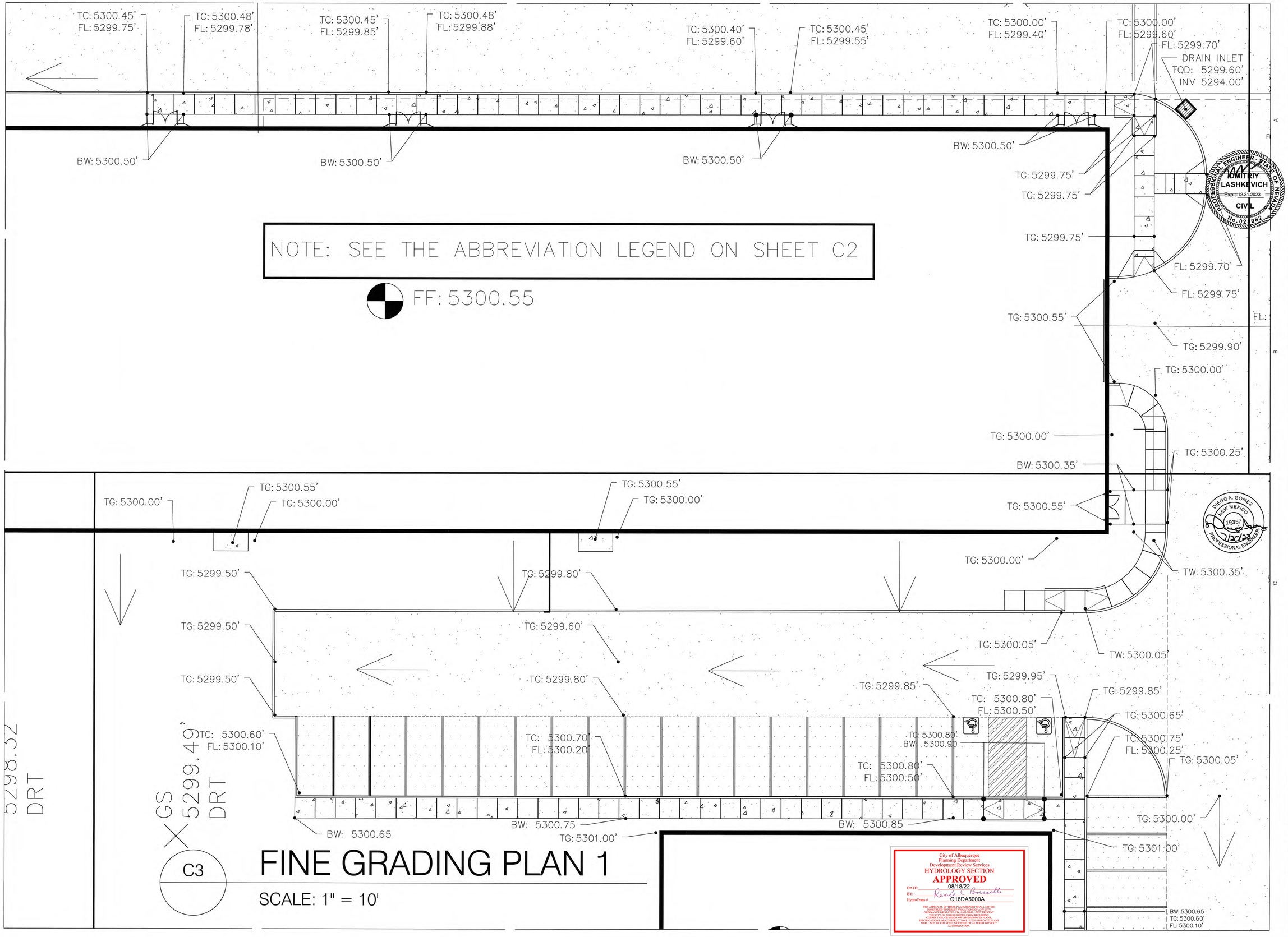
# KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

## GRADING & DRAINAGE PLAN

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C2




NOTE: SEE THE ABBREVIATION LEGEND ON SHEET C2

FF: 5300.55

C3

# FINE GRADING PLAN 1

SCALE: 1" = 10'

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 08/18/22
BY: Renée C. Brissette
HydroTrans # Q16DA5000A

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION OF ERRORS OR DEMANDING IN PLANS, SPECIFICATIONS, OR CONSTRUCTION, SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

PROFESSIONAL ENGINEER - STATE OF NEVADA
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Greenbox Architecture
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OREGON CITY, OREGON 97045

RPM TEAM

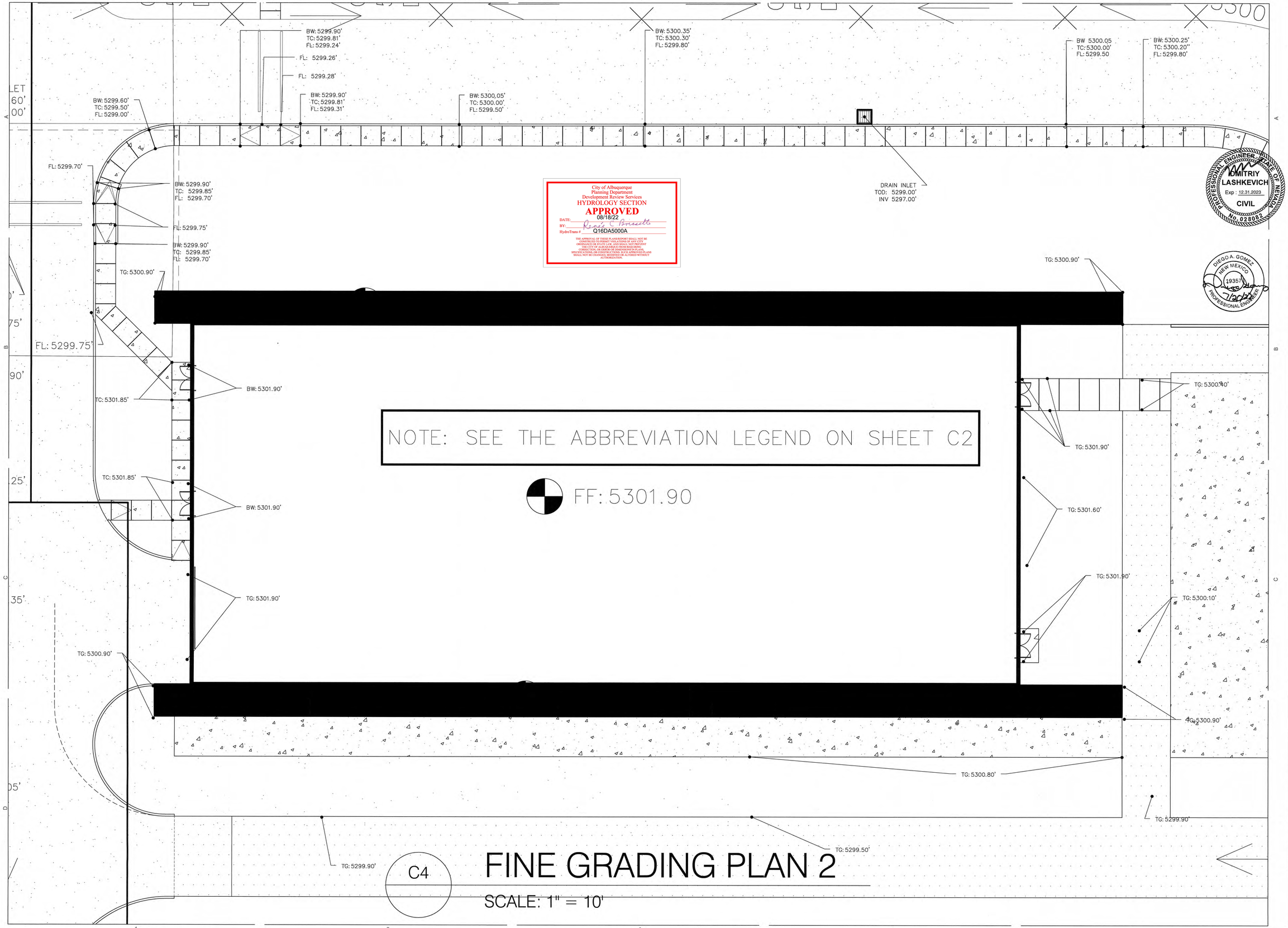
KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

FINE GRADING PLAN 1

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C3




City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
**APPROVED**
08/18/22
DATE:
BY:
HydroTrans # Q16DA5000A

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NOTE: SEE THE ABBREVIATION LEGEND ON SHEET C2

FF: 5301.90

# FINE GRADING PLAN 2

C4

SCALE: 1" = 10'

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STATE OF NEVADA

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RPM
TEAM

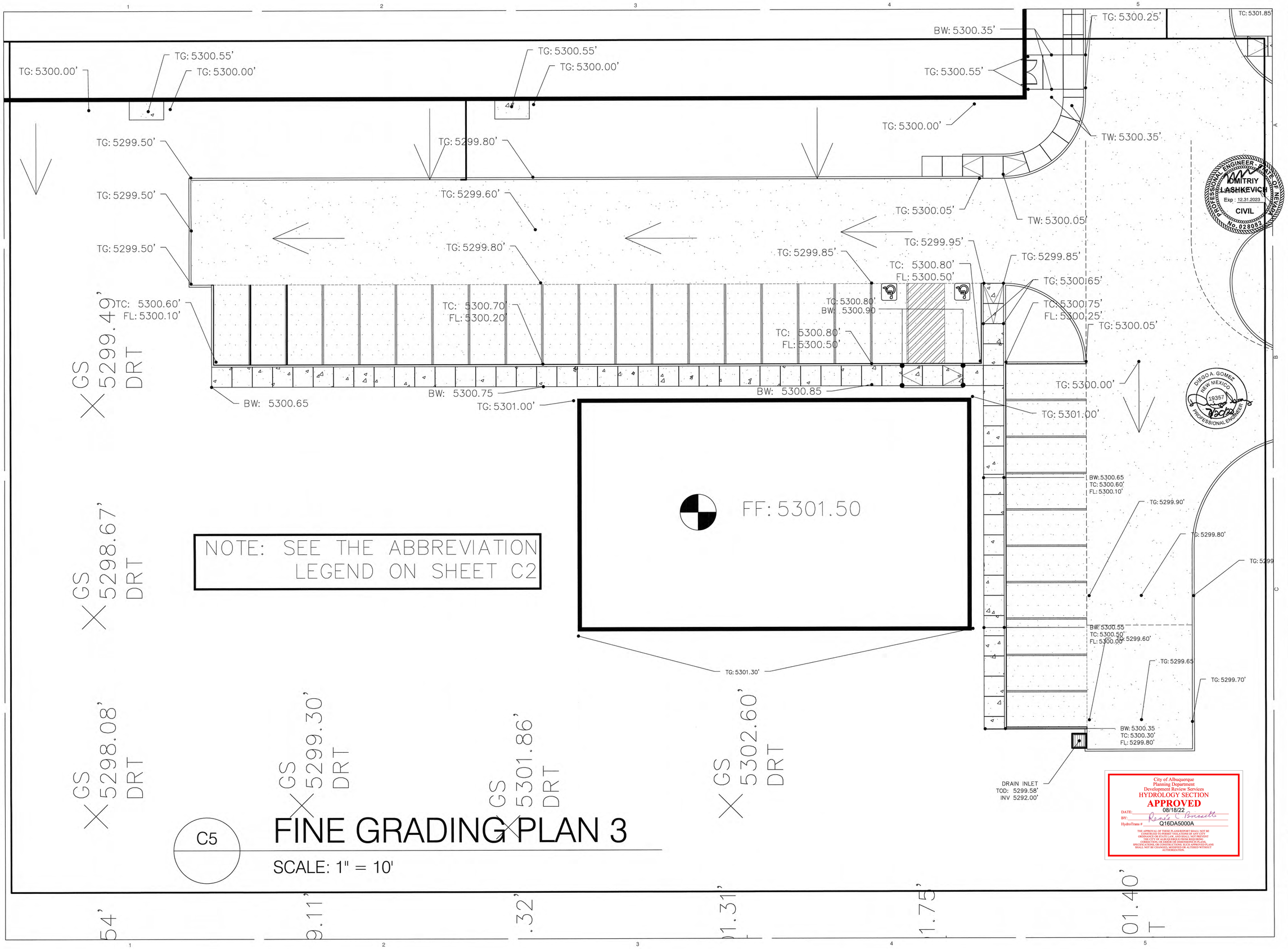

KAIROS POWER FACILITY
EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATION PARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATION PARK I) CONT 16.4161 AC

FINE GRADING PLAN 2

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C4




City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 08/18/22
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KAIROS POWER FACILITY EXPANSION

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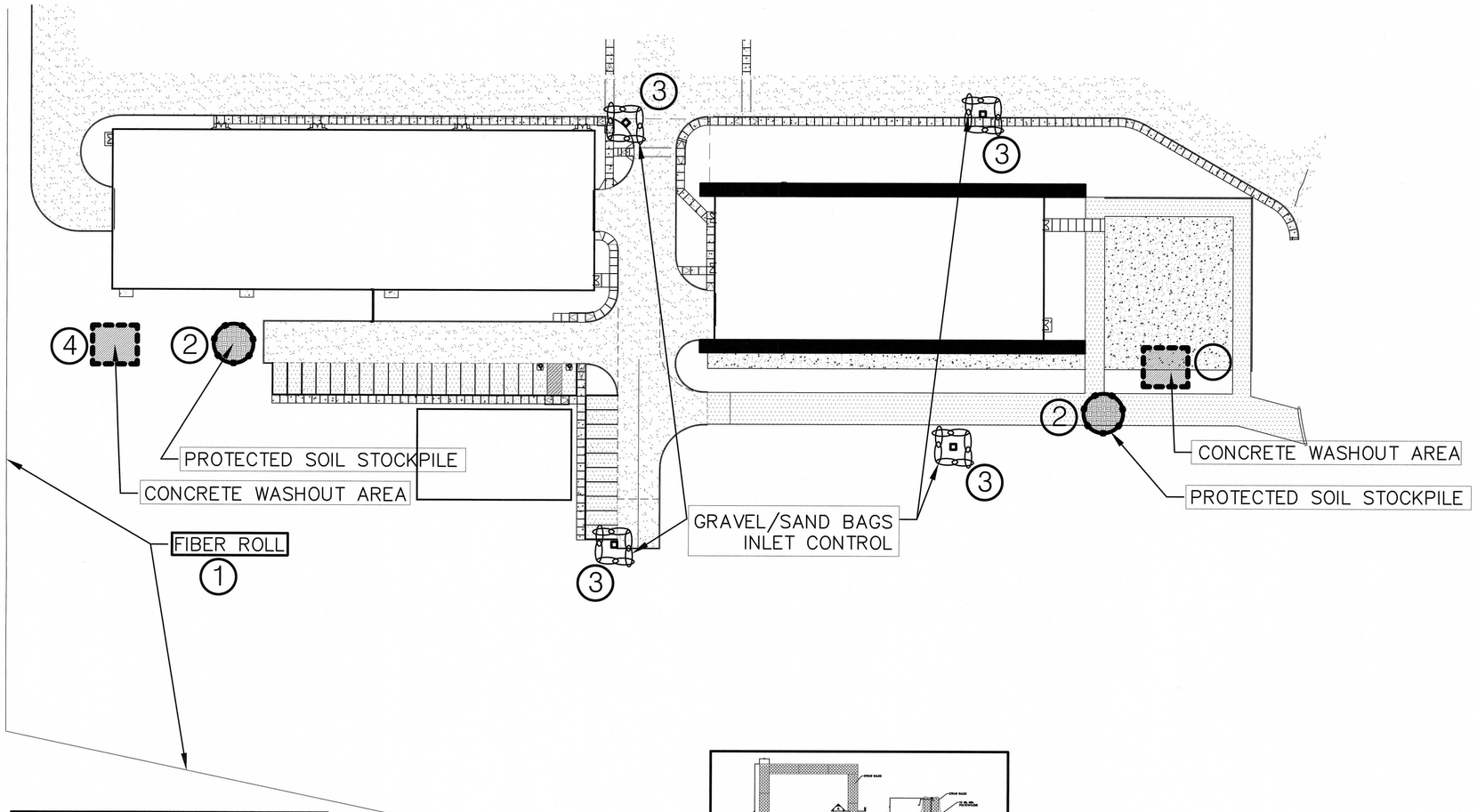
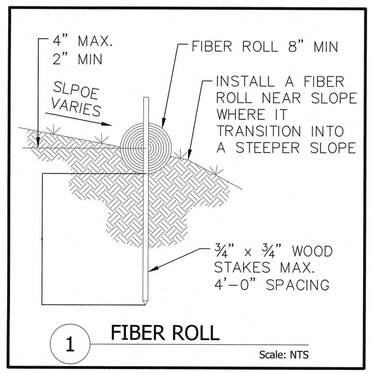
FINE GRADING PLAN 3

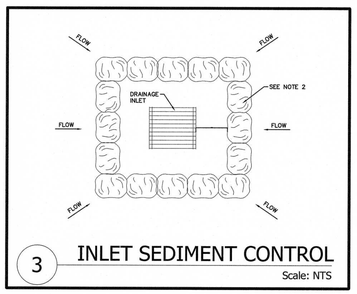
PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C5

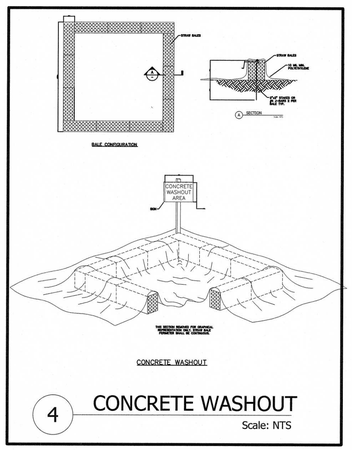


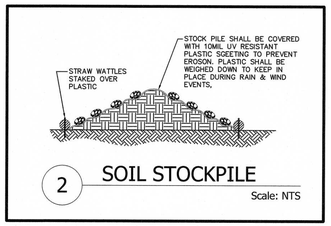

1 FIBER ROLL
Scale: NTS




3 INLET SEDIMENT CONTROL
Scale: NTS




4 CONCRETE WASHOUT
Scale: NTS




2 SOIL STOCKPILE
Scale: NTS

C6 EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 40'

N

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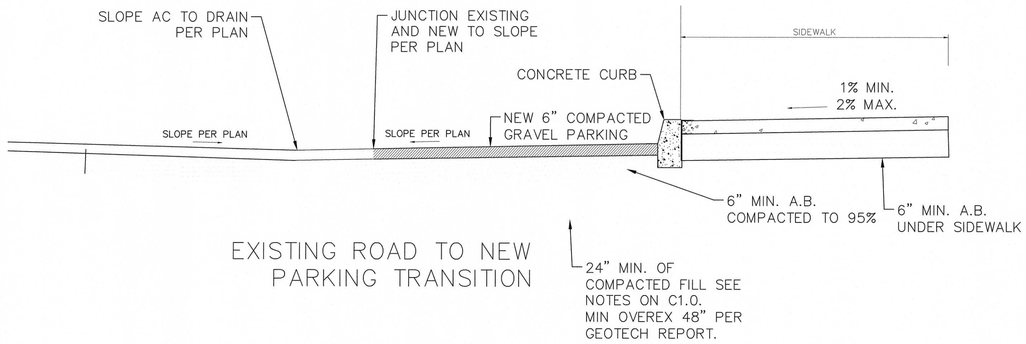
KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

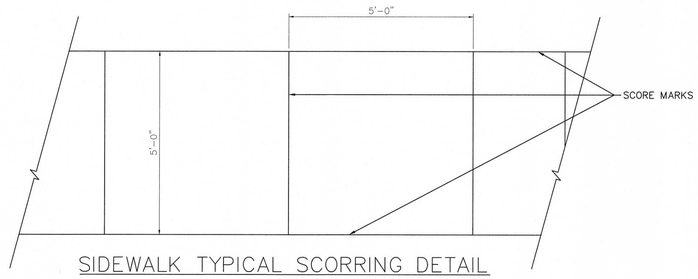
EROSION CONTROL PLAN

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C6




EXISTING ROAD TO NEW PARKING TRANSITION

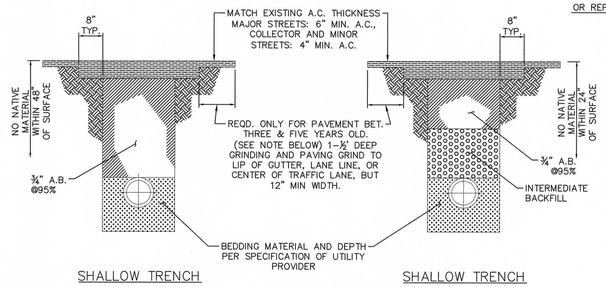



SIDEWALK TYPICAL SCORRING DETAIL

CROSS SECTION 1-1

1 NEW PARKING TO EXISTING ROAD SECTION

Scale: NTS




SHALLOW TRENCH

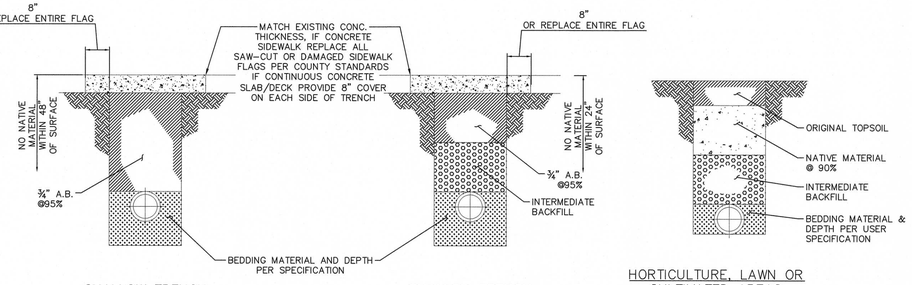
IN EXISTING PAVEMENT (LESS THAN 4' COVER)

SHALLOW TRENCH

IN EXISTING PAVED AREAS AND OTHER TREANCHING (4' OR MORE COVER)

2 SIDEWALK SCORRING TYP

Scale: NTS




SHALLOW TRENCH

IN EXISTING PAVEMENT (LESS THAN 4' COVER)

SHALLOW TRENCH

IN EXISTING PAVED AREAS AND OTHER TREANCHING (4' OR MORE COVER)



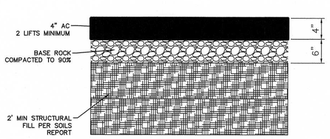

HORTICULTURE, LAWN OR CULTIVATED AREAS

NOTE"

NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD.

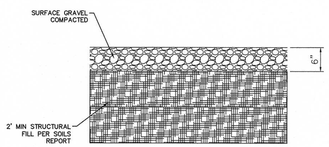
3 TRENCH RESTORATION SECTIONS

Scale: NTS



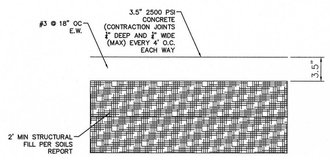

7 GRAVEL ROAD AND DRIVEWAY

Scale: NTS



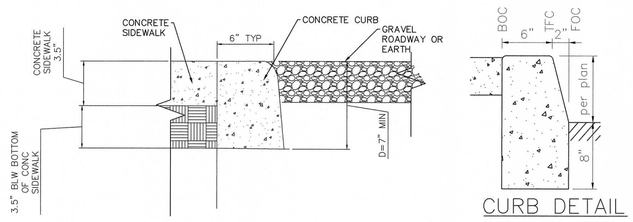

8 GRAVEL ROAD AND DRIVEWAY

Scale: NTS




10 CONCRETE WALKWAY

Scale: NTS




CURB DETAIL

11 WALKWAY TO ROADWAY TRANSITION (CURBS TYP)

Scale: NTS

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19351
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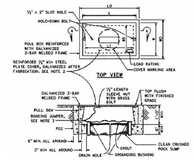
# KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK III CONT 16.4161 AC

## CIVIL DETAILS

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C7

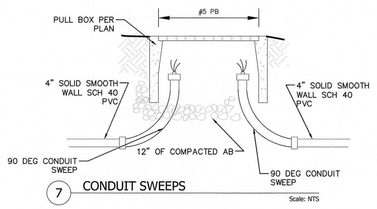



No. 3½(T), No. 5(T) AND No. 6(T) TRAFFIC PULL BOX

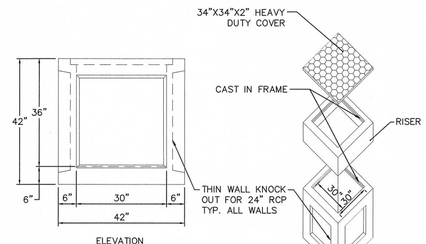
| PULL BOX | DIMENSION TABLE | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PULL BOX | | | | | | COVER | |
| | MINIMUM * THICKNESS | MINIMUM DEPTH BOX AND EXTENSION | LO | LI | WO | WI | L ** | W ** |
| No. 3½(T) | 1½" | 1'-0" | 1'-10" - 1'-11" | 1'-5" - 1'-6½" | 1'-3" - 1'-4" | 10" - 1'-0" | 1'-8" - 1'-8½" | 1'-1" - 1'-2" |
| No. 5(T) | 1¾" | 1'-0" | 2'-5" - 2'-6" | 2'-0" - 2'-1" | 1'-6" - 1'-7" | 1'-1" - 1'-2" | 2'-3" - 2'-3½" | 1'-4" - 1'-4½" |
| No. 6(T) | 2" | 1'-0" | 2'-11" - 3'-1" | 2'-6" - 2'-7" | 1'-10" - 2'-0" | 1'-5" - 1'-6" | 2'-9" - 2'-9½" | 1'-8" - 1'-8½" |

* EXCLUDING CONDUIT WEB ** TOP DIMENSION

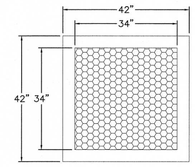
1 PULL BOX DETAIL
Scale: NTS

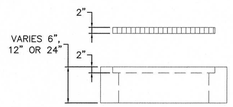



7 CONDUIT SWEEPS
Scale: NTS

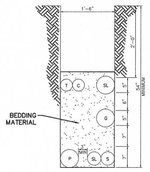



NOTE : GRADE 60 REINFORCEMENTS
4500 PSI CONCRETE H 20 LOADING



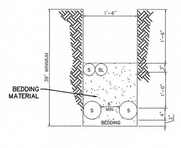

16 DRAINAGE JUNCTION BOX
Scale: NTS



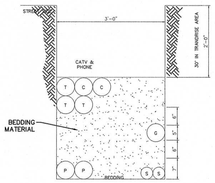

- TYPICAL DISTRIBUTION TRENCH
Scale: NTS

MINIMUM SEPARATION AND CLEARANCE REQUIREMENTS

| | POSITION OF CABLE | | | | | |
|---|---|---|---|---|---|---|
| | G | T | C | S | P | |
| G (GAS) SEE NOTES 4,7 & 13 | --- | 12" | 12" | 12" | 6" | 12" |
| T (TELEPHONE) DUCT | 12" | --- | 1" | 1" | 12" | 12" |
| T (TELEPHONE) DIRECT BURY | 12" | 1" | --- | 1" | 12" | 12" |
| C (CATV) | 12" | 1" | 1" | --- | 12" | 12" |
| S (ELECTRIC SECONDARY) | 6" | 12" | 12" | 12" | --- | 3" |
| P (ELECTRIC PRIMARY) | 12" | 12" | 12" | 12" | 3" | --- |
| SL (STREET LIGHT) SEE NOTE 5 | 6" | 12" | 12" | 12" | 1" | 3" |

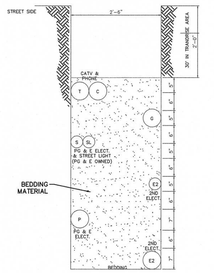



- TYPICAL SERVICE TRENCH
Scale: NTS

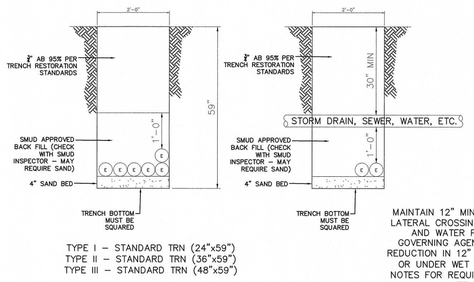



- 36" WIDE JOINT TRENCH
Scale: NTS

- 24" WIDE JOINT TRENCH
Scale: 1-1/2" :1'-0"




- JT W 2ND ELECTR LINE
Scale: NTS



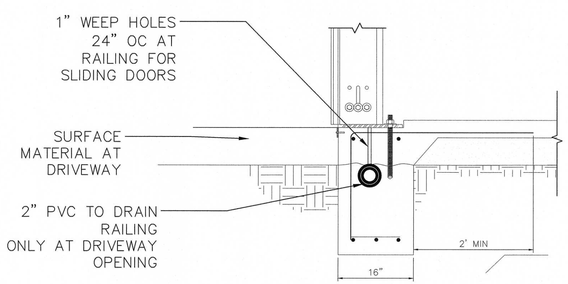

TYPE I – STANDARD TRN (24"x59")
TYPE II – STANDARD TRN (36"x59")
TYPE III – STANDARD TRN (48"x59")

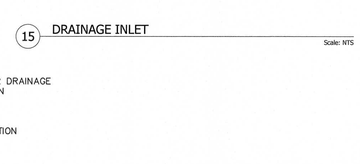
MAINTAIN 12" MINIMUM CLEARANCE AT LATERAL CROSSINGS TO STORM, SEWER AND WATER PIPES. SEE LOCAL GOVERNING AGENCIES FOR POSSIBLE REDUCTION IN 12" MIN CLEARANCE OVER OR UNDER WET PIPE. (SEE CRITICAL NOTES FOR REQUIRED DISTANCED FROM WET UTILITIES)

CRITICAL NOTES:

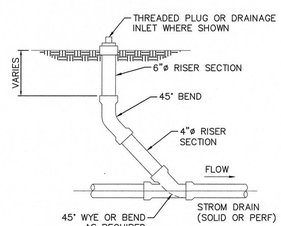
1. "NON-UTILITY FACILITIES ARE NOT PERMITTED IN THE JOINT TRENCH INSTALLATIONS WITH COMPANY FACILITIES." CPUC GENERAL ORDER 128, SECTION 111C 91).
2. NO CHANGES IN THE CONDUIT AND JT ROUTING ARE TO BE MADE WITHOUT PRIOR AUTHORIZATION FROM EACH UTILITY INVOLVED.
3. THE JT MUST MAINTAIN 3' HORIZONTAL AND 12" VERTICAL CLEARANCE FROM ANY WET UTILITY (SIDE OF TRENCH TO SIDE OF PIPE) AS PER SMUD REQUIREMENTS. THE ACTUAL DEPTH OF ANY CROSSING IS TO BE DETERMINED IN THE FIELD AND SHORING MAY BE REQUIRED.
4. DEVELOPER TO PROVIDE ALL PERMITS AND ENCROACHMENT PERMITS.

5 JOINT TRENCH TYPICAL DETAILS
Scale: NTS

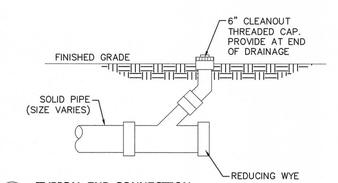



15 DRAINAGE INLET
Scale: NTS




12 TYPICAL RAISER FOR DRAIN PIPE
Scale: NTS




13 TYPICAL END CONNECTION
Scale: NTS

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PROFESSIONAL ENGINEER STATE OF NEVADA

DIEGO A. GOMEZ
NEW MEXICO
19357
12/20/22
PROFESSIONAL ENGINEER

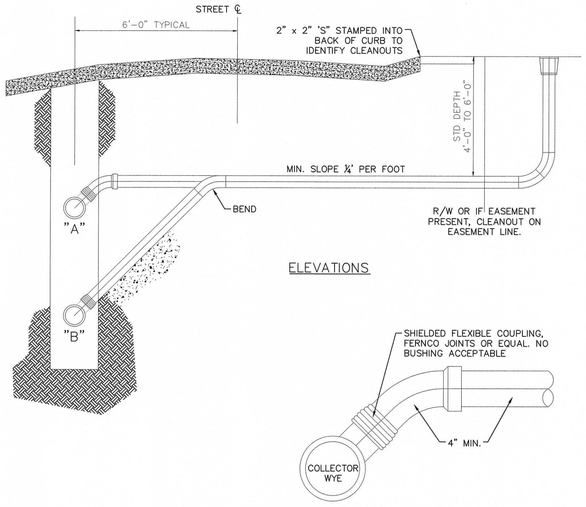
# KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

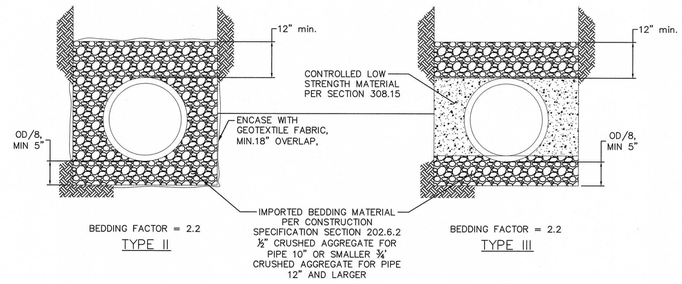
## CIVIL DETAILS

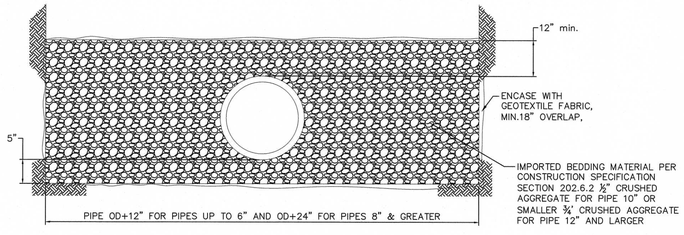
PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C8

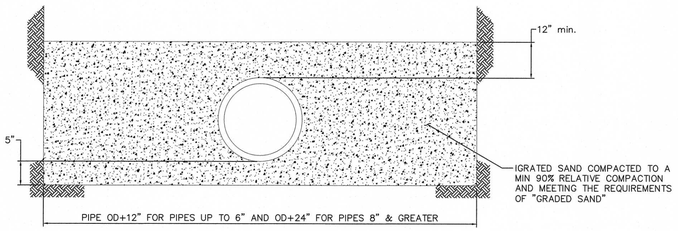



STANDARD LOWER LATERAL CONNECTION

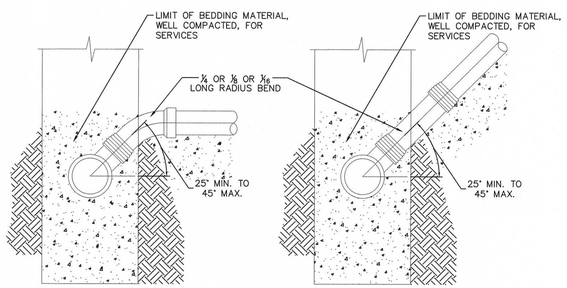


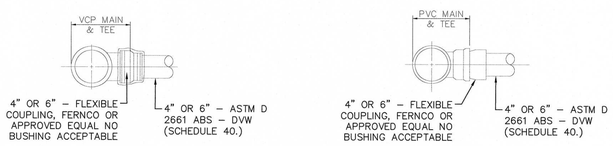




FOR FLEXIBLE GRAVITY PIPE



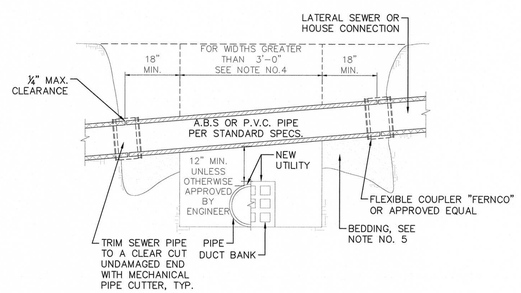

FOR ALL PRESSURE PIPE




V.C.P SEWER MAIN A.B.S SEWER MAIN

CONNECTION DETAILS




UTILITY CROSSING

Greenbox Architecture
502 SEVENTH STREET, SUITE 203
OREGON CITY, OREGON 97045

RPM TEAM

PROFESSIONAL ENGINEER - STATE OF NEVADA
DMITRIY LASHKEVICH
Exp : 12.31.2023
CIVIL
No. 028082

DIEGO A. GOMEZ
NEW MEXICO
19357
PROFESSIONAL ENGINEER
7/20/22

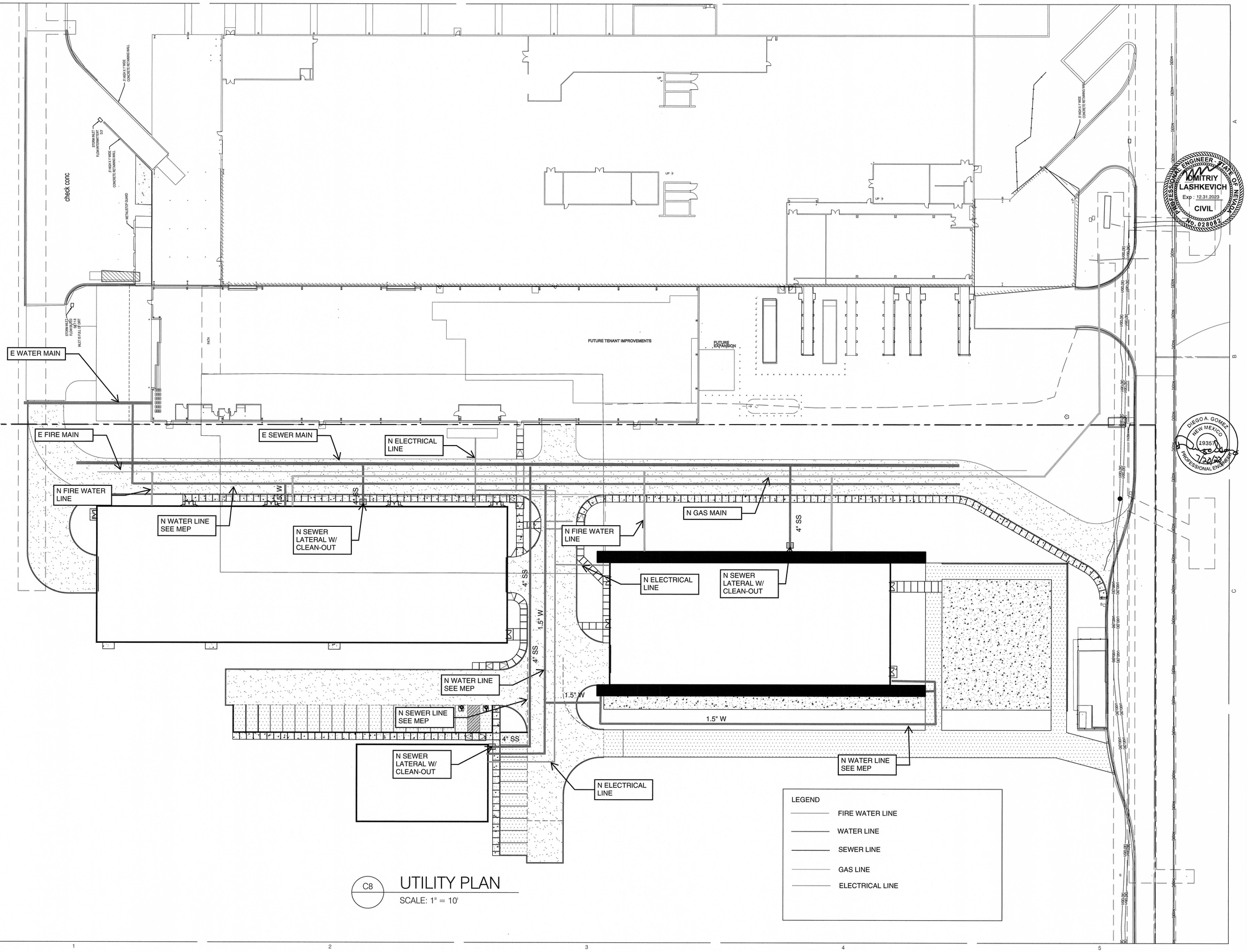
KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATIONPARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATIONPARK II) CONT 16.4161 AC

CIVIL DETAILS UTILITIES

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C9




C8 UTILITY PLAN

SCALE: 1" = 10'

Greenbox Architecture
502 SEVENTH STREET, SUITE 203
OREGON CITY, OREGON 97045

RPM TEAM

PROFESSIONAL ENGINEER STATE OF NEW MEXICO
DMITRIY LASHKEVICH
Exp : 12.31.2023
CIVIL
No. 028082

DIEGO A. GOMEZ
NEW MEXICO
19351
7/20/22
PROFESSIONAL ENGINEER

# KAIROS POWER FACILITY EXPANSION

TR D-1 PLAT OF TRACTS D-1 THRU D-7 MESA DEL SOL INNOVATION PARK II (A SUBDIVISION OF TRACT D MESA DEL SOL INNOVATION PARK II) CONT 16.4161 AC

## UTILITY PLAN

PROJECT NO.: 8800-22
DRAWN BY:
DATE: 7.2.2022

C10