

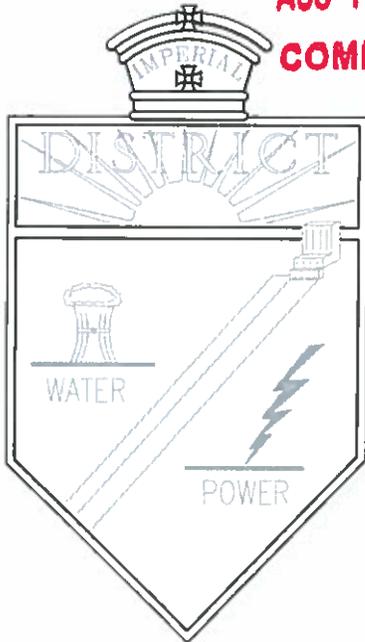
NOTES:

- CONTACT IID DISTRIBUTION UNIT @ (760) 482-3300 48 HOURS IN ADVANCE PRIOR TO CONSTRUCTION FOR A PRE-CONSTRUCTION MEETING.

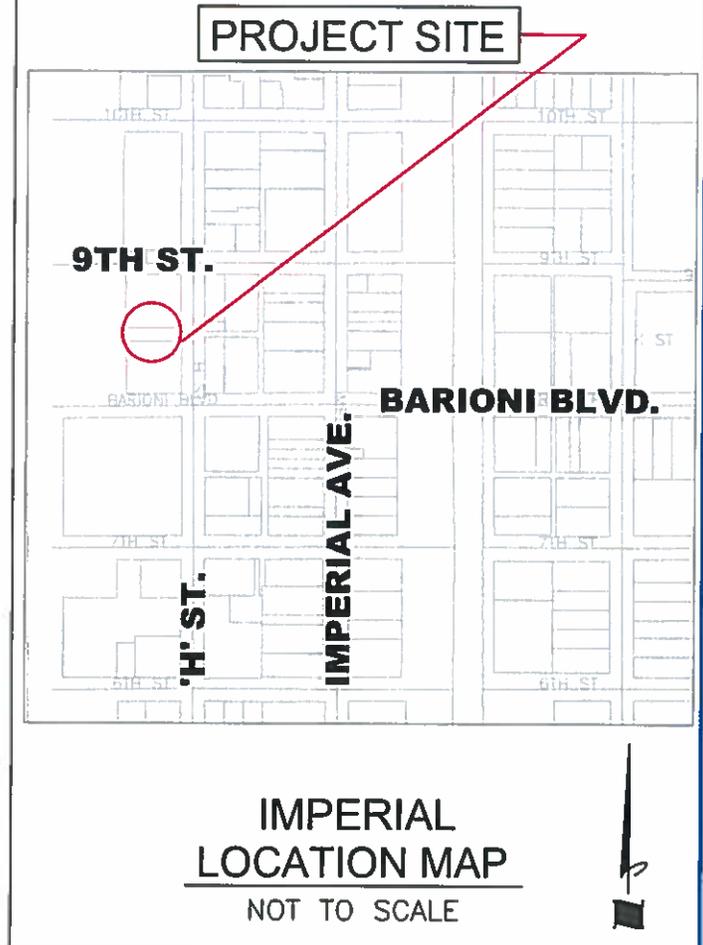
ENGINEERING

AUG 12 2015

COMPLETE



<input type="checkbox"/> CUSTOMER	<input type="checkbox"/> SCHEDULING (DESIGN ONLY)	<input type="checkbox"/>
<input type="checkbox"/> DISTRIBUTION	<input type="checkbox"/> ENERGY RECORDS (DESIGN ONLY)	<input type="checkbox"/>
<input type="checkbox"/> INSPECTOR	<input type="checkbox"/>	<input type="checkbox"/>



THIS WORK REQUIRES IID INSPECTION. SEE THE IID UNDERGROUND INSPECTION PROCESS INCLUDED IN THESE CONTRACTOR NOTES. ALL EQUIPMENT OR MATERIAL INSTALLED, COVERED, OR ENCLOSED BY THE CONTRACTOR PRIOR TO IID INSPECTION SHALL BE REMOVED OR UNCOVERED FOR INSPECTION, AND REINSTALLED, AT NO EXPENSE TO IID. IID WILL NOT ACCEPT OR ENERGIZE FACILITIES THAT FAIL TO MEET THE REQUIREMENTS OUTLINED IN THE PROCESS.

CONTRACTOR NOTES

UNDERGROUND SERVICE ALERT

**1-800-422-4133
CALL USA/SC**

**For Underground Locating
2 Working Days Before You Dig**

SERVICE NOTIFICATION#: 4018438
SERVICE ORDER#: 60095913

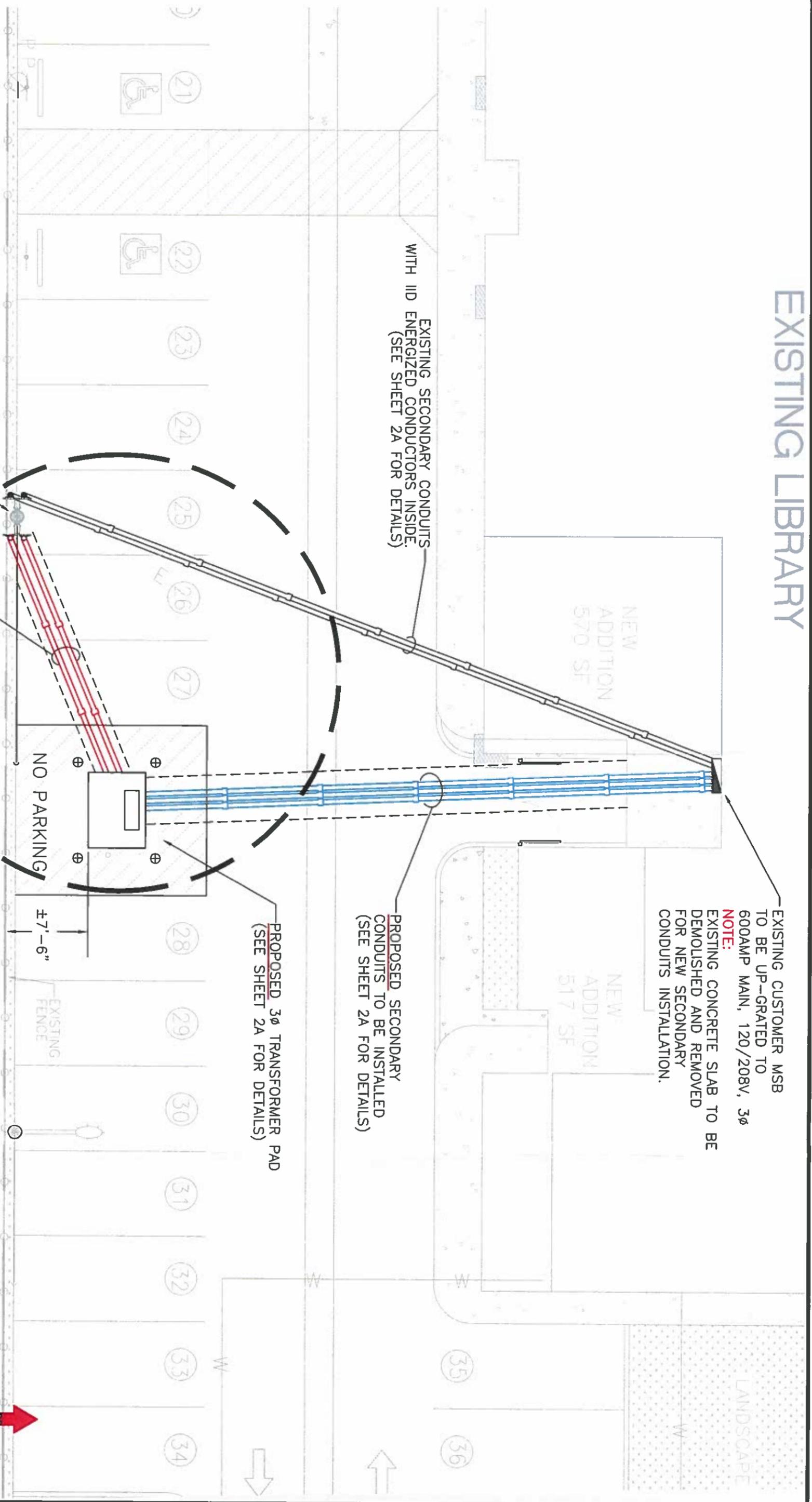
SHEET 1 OF 34

Imperial Irrigation District
Imperial, Calif.
Imperial Valley Energy Project
U.G. DISTRIBUTION (CITY)
IMPERIAL
CITY OF IMPERIAL
(600A 120/208V, 3PH U.G. SVC. TO LIBRARY)
CONDUIT LAYOUT

#1	8-5-15	REVISION 1: PRIMARY RISER TO BE INSTALLED ON E/S OF POLE (8-5-15)
#2	8-12-15	REVISION 2: ADDING AN EXTRA 1-5" PVC PRIMARY CONDUIT (8-12-15)
REVISION	DATE	DESCRIPTION

DATE	7-28-15	APPROVED
DESIGN'D	S. AVILA	<i>AS</i>
DRAWN	S. AVILA	8/12/15

EXISTING LIBRARY



EXISTING CUSTOMER MSB TO BE UP-GRADED TO 600AMP MAIN, 120/208V, 3Ø
NOTE:
 EXISTING CONCRETE SLAB TO BE DEMOLISHED AND REMOVED FOR NEW SECONDARY CONDUITS INSTALLATION.

PROPOSED SECONDARY CONDUITS TO BE INSTALLED (SEE SHEET 2A FOR DETAILS)

PROPOSED 3Ø TRANSFORMER PAD (SEE SHEET 2A FOR DETAILS)

EXISTING SECONDARY CONDUITS WITH IID ENERGIZED CONDUCTORS INSIDE. (SEE SHEET 2A FOR DETAILS)

EXISTING IID RISER POLE (SEE SHEET 2A FOR DETAILS)

PROPOSED PRIMARY CONDUITS (SEE SHEET 2A FOR DETAILS)

DETAILS (SEE SHEET 2A)



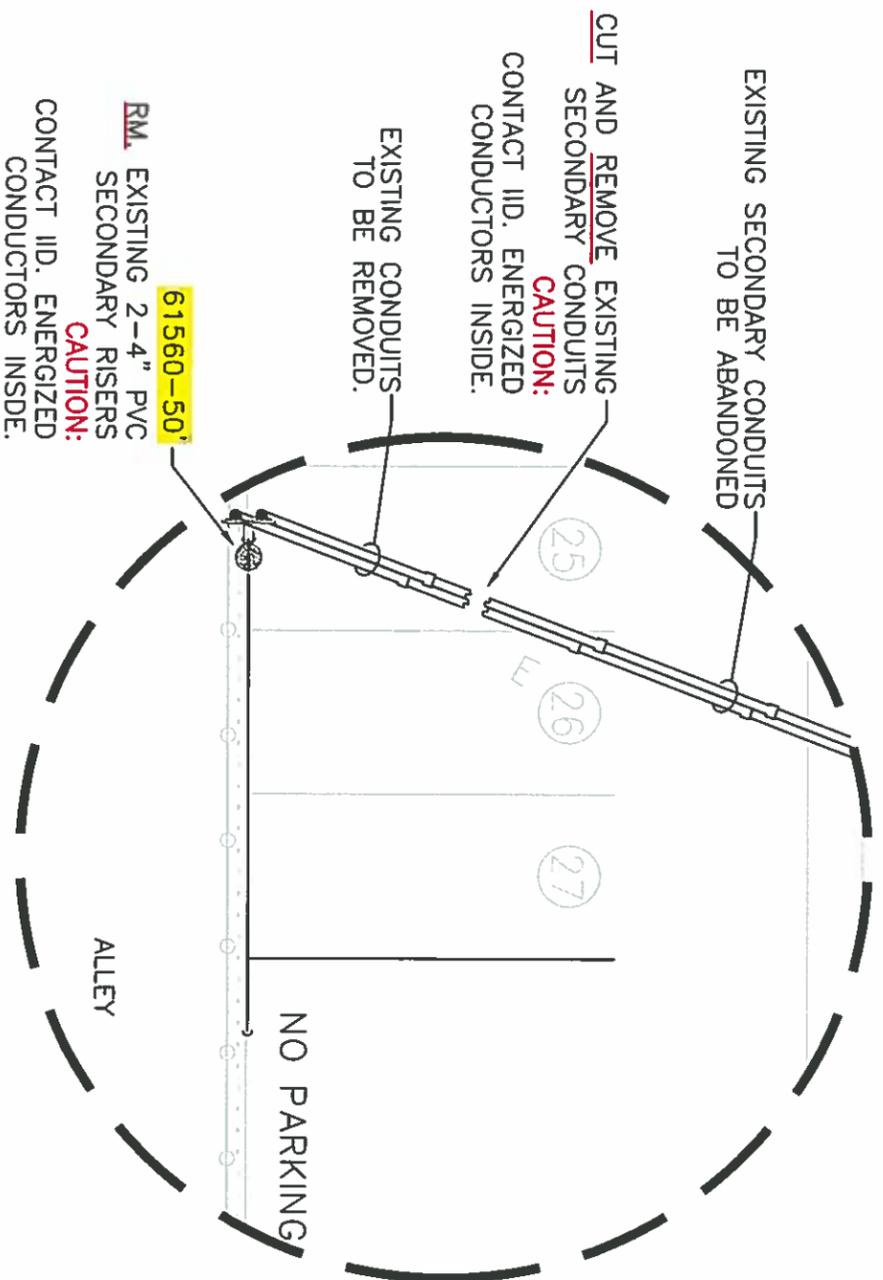
SCALE: 1:10

T.15 R.14 SEC.18

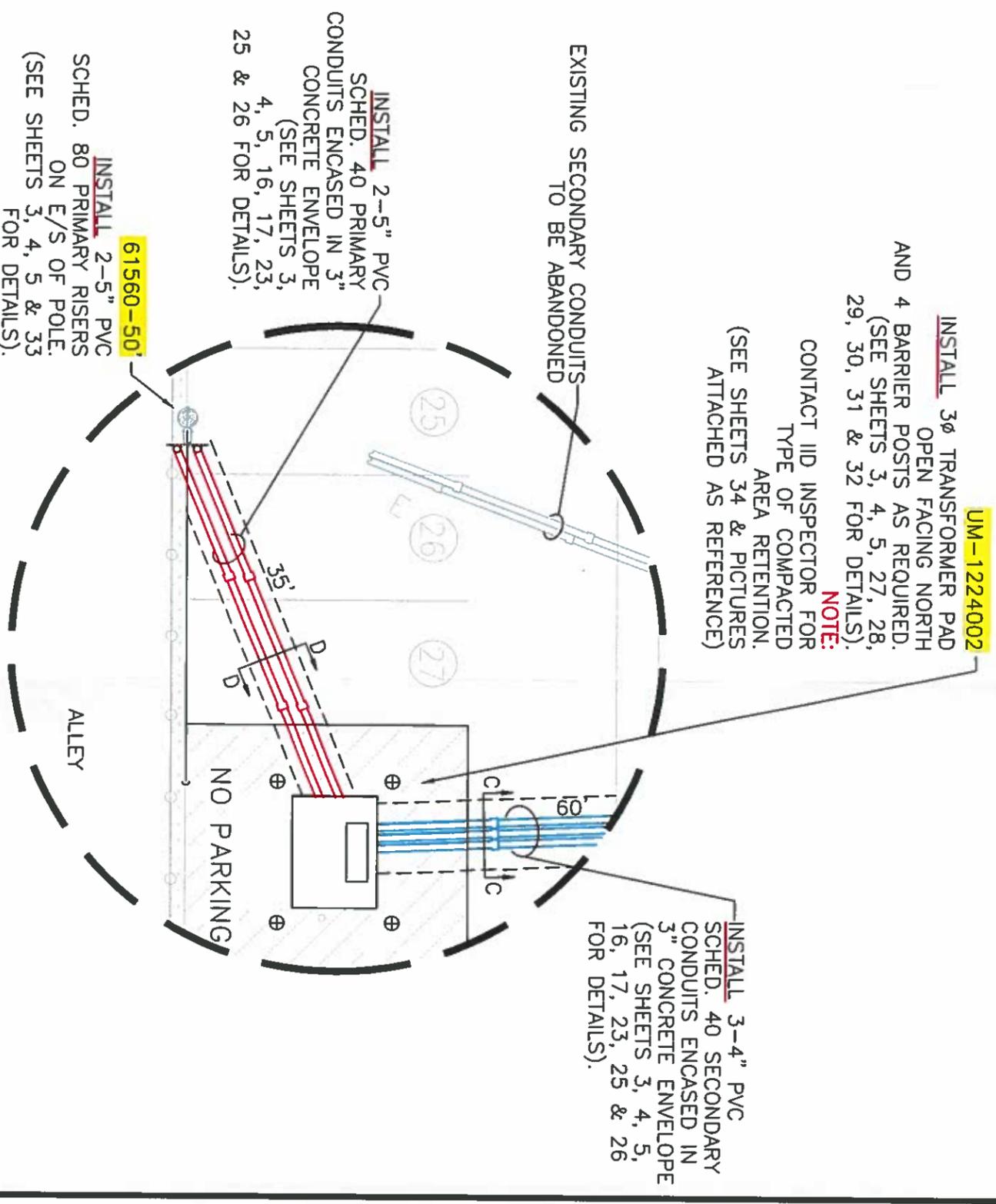
ENG. BY: S. AVILA	DRAWN BY: S. AVILA	REVISION 2: ADDING AN EXTRA 1-5" PVC PRIMARY RISER AND CONDUIT (8-12-15)	PJ NAME: CITY OF IMPERIAL (600A 120/208V 3PH U.G. SVC. TO LIBRARY)
		SERV. ORDER#: 60095913	DATE: 7-28-15
		CIRCUIT#: M-321	SHEET 2 OF 34
		CONDUIT LAYOUT	



CAUTION:
 CONTACT IGNACIO ROMO @ (760) 427-1590
 48 HOURS IN ADVANCE FOR EXISTING
 UNDERGROUND ENERGIZED CONDUCTORS
 REMOVAL COORDINATION, PRIOR
 TO CONSTRUCTION.



REMOVAL



INSTALLATION



SCALE: 1:10

T.15 R.14 SEC.18

ENG. BY: S. AVILA DRAWN BY: S. AVILA

REVISION 2: ADDING AN EXTRA 1-5" PVC PRIMARY RISER AND CONDUIT (8-12-15)
 SERV. ORDER#: 60095913 CIRCUIT#: M-321 CONDUIT LAYOUT

PJ NAME: CITY OF IMPERIAL
 DATE: 7-28-15 SHEET 2A OF 34



IMPERIAL IRRIGATION DISTRICT

Customer Operations • 1699 W. Main St, Suite A • El Centro, CA 92243

UNDERGROUND INSPECTION PROCESS

1. Pre -construction meeting with Electrical Contractor.
 - A. IID Inspector and Contractor to meet **BEFORE** any construction or excavating. IID Inspector will explain and/or highlight general installation notes according to the job. IID Inspector will also answer any questions the contractor has to avoid any delays in the future.
2. Trench depth and inspection of primary or secondary conduit installation.
 - A. Verify minimum primary and secondary trench depth is met.
 - B. Verify correct conduit(s) is being used, schedule 40 for below ground and schedule 80 for above ground use.
 - C. Verify approved diameter of conduit is being installed; see Contractor's Notes (drawing).
 - D. Verify spacing between conduits (3") is met and spacers are installed at every six feet.
3. Concrete encasement of conduit(s) where required or 12 inches of "native soil or sand."
 - A. Concrete encasement is required for street crossings, parking lots, driveways, and sidewalks. Encasement to be three sack mix at 2,000 p.s.i sand slurry. When these applications are not the case, then two sack slurry mix to be used.
 - B. Verify there is a three inch envelope of encasement all around conduit (spacers must be installed prior to encasing)
4. Caution tape over encasement or 12 inch of backfill.
5. Cadweld connection of ground wire to ground rod located at the bottom of the trench for all transformer precast pads, single phase sector precast pads, and three phase sector sleeves.
 - A. Verify ground rods are 5/8" x 10'
 - B. Verify copper strand is 2/0 wire.
6. Backfill of trench and compaction.
 - A. Backfill of trench shall or excavated areas must be a minimum of 90% compaction.
7. Stub out markers are installed where applicable.

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4/18/2013

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IMPERIAL IRRIGATION DISTRICT

Customer Operations • 1699 W. Main St, Suite A • El Centro, CA 92243

Continued:

8. Backfill of all transformer precast pads, single phase sector precast pads, and sector sleeve locations.
9. Verification of compaction test results for all transformer precast pads and all single phase sector precast pads.
 - A. Location of all transformer precast pad and single phase sector precast pads to be a compaction of 90% minimum by contractor/developer.
 - B. Compaction will be performed at a minimum of 2' beyond proposed transformer and single phase sector precast pads on all four sides.
 - C. Contractor to contact IID Inspector after compaction has been completed. IID Inspector must pass visual compaction prior to compaction test.
 - D. After IID Inspector passes compaction by contractor, the contractor will obtain a compaction test.
 - a) **NOTE:** A maximum of ½" of sand fill will be approved for leveling of compaction area. If the sand fill exceeds the maximum requirement, the IID Inspector will fail the compaction.
 - E. All transformer and single phase sector precast pads will not be installed until compaction test report has been received and reviewed by IID Inspector.
 - F. After compaction test report is reviewed by IID Inspector, the inspector must be present when contractor installs all transformer precast pads.
 - a) **NOTE:** After compaction test has been reviewed by IID Inspector, transformer precast pad must be installed within 24 hours. If transformer precast pad is not installed within allotted time, IID will require a re-test of compaction from contractor/developer.
10. Installation of any concrete vault, transformer precast pad, sector sleeve or secondary pullbox.
 - A. Verify there are no visible cracks on all transformer precast pads, single phase sector precast pads, concrete vaults, and sector sleeves.
 - B. Verify vaults, all transformer precast pads, sector sleeves, and secondary pullboxes are installed above their appropriate final grade (See Developers Energy Planning Guide).

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IMPERIAL IRRIGATION DISTRICT

Customer Operations • 1699 W. Main St, Suite A • El Centro, CA 92243

Continued:

11. Framing and pouring concrete pad for customer meter panel.
12. Installation of customer meter panel.
13. Barrier post installation (when applicable).
 - A. Verify footing is 36" in depth and 18" in diameter.
 - B. Barrier post is set 30" below finish grade.
 - C. Barrier post is 4" steel pipe.
 - D. Barrier post is painted High Visibility Yellow.
14. Final: Cold and/or hot mandrel inspection.

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CONTRACTORS NOTES

CONTRACTOR RESPONSIBILITY:

These specifications cover the requirements for furnishing and installing certain portions of electrical underground distribution facilities not detailed in the attached Contractors Drawings.

Whenever a manufacturer's material or equipment is referred to by name, type, or catalog number, this material or equipment is satisfactory, and "or approved equal" requires that other manufacturer's material or equipment will be acceptable only if it is of equal quality and approved by the District before purchase.

It will be the responsibility of the contractor to conform to local regulations and obtain any necessary permits in the performance of these specifications and comply with all District drawings and documents in their entirety.

Inspection service will be provided by the District. Materials and workmanship shall at all times be open to inspection by the District Inspector.

(Inspection schedules are subject to a minimum 48 hour advance notice and are by appointment only – ~~La Quinta (760) 398-5828~~; Imperial (760) 482-3300).

Any work failed/rejected by the District Inspector shall be corrected in a manner satisfactory to the District Inspector prior to the continuation of work. The District Inspector shall have final authority to pass, fail or approve corrected measures. Work will not continue until the District Inspector has inspected and passed the electrical system.

The required material and work includes furnishing and installing the following:

1. Excavations, trenching and backfills.
2. Conduit encasement, and concrete requirements
3. Boring
4. Underground conduits, ducts, conduit fittings, and sealing compound
5. Transformer pads, junction pads, precast vaults, junction sleeves.
6. Marking tape over conduit
7. Secondary pullboxes.
8. Copperweld ground rods 5/8" x 10'
9. Guard posts
10. Pulling rope
11. Stub outs
12. Slopes
13. Retaining Walls
14. Clearances

All work shall follow the best modern practice both in the manufacturer and the installation of underground facilities. All work shall be done by artisans skilled in their various trades.

All rights-of-way determined necessary to extend electrical service to any project shall be the sole responsibility of the customer to acquire. For information regarding all real estate and right-of-way matters please contact the IID Real Estate Section: Imperial Valley (760) 339-9239 or Coachella Valley (760) 391-5950.

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1. **Excavations, trenching and backfills:**

- A. It shall be the responsibility of the installation contractor to establish all grades (rough and final), bench marks, property corners, ties, fence lines, walls, property lines or other field references as required to install and verify the installation and location of power facilities.
- B. It shall be the responsibility of the installation contractor to establish the location and depth of all existing power system facilities and foreign substructures within the work area. The contractor shall also call the USA dig alert and keep up to date the one call ticket.
- C. Contractor/Developer shall review plans as soon as received from IID for possible conflicts or problems on locations of IID structures. Any revisions to original IID design will require additional engineering time and might cause additional delays to the project. It is the responsibility of the contractor to contact the appropriate IID Customer Service Project Manager.
- D. The installation contractor shall bear the responsibility for returning all excavated areas to at least 90% compaction. All testing to ensure 90% compaction and restoration of the work area to its former condition is the sole responsibility of the installation contractor. **(Refer to 2F)**
- E. Excavation for vaults, junction pads, secondary pullboxes and conduits shall be made to the proper depth **(Refer to 4B)**. After proper installation and inspection have been completed, compacted backfill shall be made to the finished level. All surplus excavation shall be disposed of in a satisfactory manner.
- F. Street light circuits, CATV, and telephone may be installed in the same trench; however, their relative position must be verified with each serving agency and installed to their specifications. **(Refer to Standard 100.41)**
- G. The contractor shall take due caution to keep from damaging other utility systems that have been installed and shall collaborate with other utilities that may be doing work in the same area **(Refer to 1B)**.
- H. All other utilities shall maintain no less than a 12" clearance from sub structures and underground equipment. **(Refer to Standard 100.41) (Refer to 2K)**
- I. Joint utility trench will be a minimum of 24" wide to ensure adequate separation between Power and Gas facilities. **(Refer to Standard 100.41)**
- J. Whenever possible Gas facilities will occupy the opposite side of the trench and be 12" above the power facilities. **(Refer to Standard 100.41) (Refer to 1H)**

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Excavations, trenching and backfills Continued:

- G. Developer/contractor will be responsible for coordination of inspections while trench has IID utilities exposed. (**Refer to Joint Trench Indemnity Agreement IID-700E (6-07)**)(**Inspection schedules are subject to a minimum 48 hour advance notice and are by appointment only – La Quinta (760) 398-5828; Imperial (760) 482-3300.**)

- L. The developer shall be responsible for filling out and signing IID form 700E 6-07 Joint Trench Indemnity Agreement, contact the appropriate IID Customer Service Project Manager. (**Refer to Joint Trench Indemnity Agreement IID-700E 6-07**)

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2. Conduit encasement and concrete requirements:

- A. All Encasement of power ducts will require an on site inspector at the time of encasement. **(Inspection schedules are subject to a minimum of 48 hour advance notice and by appointment only. La Quinta (760) 398-5828; Imperial (760) 482-3300.)**
- B. The term encasement as used herein shall mean a 3" envelope around all sides of one or more ducts.
- C. Utilize plastic spacers that provide 3" separation. Plastic spacers shall be used on conduit runs to be concrete encased both as single or banked installations and on duct banks not encased; spacers are placed every six feet (6'). **(Refer to Table 7)**
- D. Concrete encasement of conduits at street crossings shall be a three (3) sack sand slurry or 1800 – 2000 psi mix
- E. Backfills at street crossings maybe a three (3) sack sand slurry from top of encasement to street sub-grade. If the contractor utilizes any quick cure chemical product additives to the concrete the contractor shall take full responsibility for concrete quality. **(Refer to 2D), (Refer to 2H), (Refer to Table 7)**
- F. Backfills at street crossings that are other than a three (3) sack sand slurry backfill shall observe the following:
 - a. Contractor shall wait a minimum of 24 hours before backfilling roadbase and compacting over concrete encased conduit.
 - b. The contractor is responsible to ensure a compaction of 90%
 - c. The contractor assumes the responsibility of providing the IID with the compaction test verification. **(Refer to 1D), (Refer to 1G)**
- G. Backfill Material when used above concrete encasement shall be a standard roadbase material properly compacted, unless otherwise specified on the drawings or by the IID Customer Service Project Manager. **(Refer to 1D), (Refer to 1F)**
- H. IID concrete encasement, backfill, etc. requirements will be followed unless the City, County, State Agency, Property Owners, or Authority having jurisdiction has requirements that are more strict, the highest requirements will be followed.
- I. Encasement shall be sand slurry below streets, parking lots, and commercial driveways. **(Refer to Trench Detail standard 100.3, Page 42), (Refer to Table 7)**
- J. Concrete encasement for all other locations shall be no less than a 2 sack or 1500 psi sand slurry mix.

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Conduit encasement, and concrete requirements Continued:

- K. The layers between the adjoining utilities will be in compliance with G.O. 128 and have a minimum of 12" separation. That separation may be reduced with concrete encasement. **(Refer to 1H), (Refer to Standard 100.41)**
- L. Conduit encasement criteria is as follows in Table 7

ENCASEMENT CRITERIA Table 7			
Feeder Type	Number of Runs	Size	Amperage
Back bone	2 or more	6"	600 Amp
Lateral	4 or more	5"	200 Amp

Underground conduits, ducts, conduit fittings, and sealing compound:

- A. Conduit runs shall not cross each other when on the same level and/or plane.
- B. Primary conduits shall be buried a minimum depth of four feet (4'). Secondary and service conduits shall be buried a minimum depth of two and one half feet (2½').
- C. Sizes and arrangements of conduits shall be as shown on the drawings.
- D. Where the external diameter of the conduit is smaller than the diameter of the opening in the vault wall, the reduction in conduit diameter shall take place two feet (2') from the external wall of the vault. **Refer to Drawing # 1**

Refer to Drawing 1 Vault side view, conduit reduction

- E. The maximum obtainable separation between power facilities and all other substructures shall be maintained at all times, 12" minimum when paralleling and 12" minimum when crossing encased in concrete. (12" minimum refers to compacted backfill)
- F. Conduit shall be: PVC heavy wall schedule 40 for below ground installation and schedule 80 for above ground installation. **(See conduit index table 2).**
- G. Conduit sweeps in duct runs shall not have less than a 12'-6" horizontal radius unless shown otherwise on the plans. **(See radius index (horizontal) table 4)**
- H. Conduit sweeps in vertical runs (pole risers and equipment risers) shall be installed in accordance with table 5.
- I. All 2", 3" service and/or secondary conduit (vertical) risers which enter buildings, service panels, secondary boxes, transformer pads, meter pedestals, etc., shall have a minimum 2'-0" radius, see riser sweep radius index (vertical) table 5.
- J. All 4" primary conduit (vertical) risers which enter transformer pads, primary metering panels, underground switch gear panels and pole risers, shall have a 4'-0" Radius for 4" duct, see riser sweep radius index (vertical) table 5.
- K. All 5", 6" primary conduit risers which enter transformer pads, primary metering panels, underground switch gear panels and pole risers, shall have a minimum of 4'-0" radius for 5" duct, and 5'-0" radius for 6" duct, see riser sweep radius index (vertical) table 5. Contact your IID Customer Service Project Manager for further instructions or questions.

Underground conduits, ducts, conduit fittings, and sealing compound continued:

- K. The installation contractor shall mandrel all conduit runs to and including service duct, IID shall provide the mandrel and inspector. **(Inspection schedules are subject to a minimum 48 hour advance notice and are by appointment only – La Quinta (760) 398-5828; Imperial (760) 482-3300).**

- L. The installation of the conduit system will be conducted by a single contractor or other entity to give the project continuity, reducing the possibility of deviations from the G.O. 128 regulations.

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TABLES

Table 2 (Conduit Index)

CONDUIT INDEX Table 2								
CONDUIT DIAMETER	STRAIGHT BELOW GROUND	SWEEPS HORIZONTAL BELOW GROUND	POLE RISER SWEEP	STRAIGHT ABOVE GROUND	EQUIP SWEEP	TRANS PAD	SCONDARY BOXES	METER PANELS
1"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40
2"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40
3"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40
4"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40
5"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40
6"	SCH 40	SCH 40	SCH 80	SCH 80	SCH 40	SCH 40	SCH 40	SCH 40

Table 4 (Conduit Radius Index –Horizontal-)

CONDUIT RADIUS INDEX (HORIZONTAL) Table 4			
PRIMARY			
CONDUIT DIA.	RADIUS	CONDUCTOR SIZE	PVC SCHEDULE
4"	12.5' Radius	1-1/0 Conductor	40
5"	12.5' Radius	3-1/0 Conductors	40
6"	25' Radius Typical	3-750 MCM Conductors	40
6"	*50' Radius as Specified	3-750 MCM Conductors	40

*Contact your IID Customer Service Project Manager for instructions

Table 5 (Riser Sweep Radius –Vertical-)

RISER SWEEP RADIUS INDEX (VERTICAL) TABLE 5						
SECONDARY Conduit Dia.	Radius	Pole Riser PVC SCH	Equip. Riser PVC SCH	Trans. Pad PVC SCH	Secondary PVC SCH	Meter Panels PVC SCH
2"	24" Radius	N/A	40	40	40	40
3"	36" Radius	80	40	40	40	40
4"	*36"-48" Radius	80	40	40	40	40
PRIMARY Conduit Dia.	Radius	Pole Riser PVC SCH	Equip. Riser PVC SCH	Trans. Pad PVC SCH	Secondary PVC SCH	Meter Panels PVC SCH
4"	48" Radius	80	40	40	N/A	N/A
5"	*48"-60" Radius	80	40	40	N/A	N/A
6"	60" Radius	80	N/A	N/A	N/A	N/A

*Contact your IID Customer Service Project Manager for instructions.

N/A = Not Applicable

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5. **Transformer pads, junction pads, precast vaults, junction sleeves:**

- A. All conduit entering transformer pads shall be cut off 0" to 1" (inch) from above the top of the pad.
- B. All conduit entering secondary pull boxes or splice boxes shall be cut off 7" to 9" (inches) above the pea gravel.
- C. Single phase transformer pads installed adjacent to roads shall have the primary conduits installed closest to the road, and secondary conduits installed away from the road. (Contact the appropriate IID Customer Service Project Manager)
- D. Transformer pads, pull boxes, manholes, vaults, and switch pad installations, shall be installed 3" above final grade (where not installed along sidewalks) and flush with final sidewalk for those types of installations. In areas with sloping contours greater than 1/4" to the foot, the top edge shall be set as shown below highest point of slope. (In no case shall there be more than 3" of slope in 1' (foot) of horizontal measurement.)
- E. Transformer Pad inspection; when the contractor receives or installs a Transformer Pad that has a continuous crack across three sides (side, top, and inside window) this pad will be rejected by the IID inspector. When a crack is non-continuous and the crack exceeds 1/32" (.032) wide, the contractor may make appropriate repairs to the crack with a manufacture approved epoxy equal to CIA-GEL 7000. The contractor will inform the IID inspector of any crack repair to be made before repair is made.
- F. Contractor is responsible for permanent and waterproof markings on all interior vault knockouts, any and all conduits, conduit runs, and stub outs, with the conduit number corresponding to the number shown on the plans.
- G. Contractor shall seal or grout around seams, lid sections, and ducts entering vaults and pullboxes to prevent soil and water entering at joints or openings.
- H. Where the external diameter of the conduit is smaller than the diameter of the opening in the vault wall, the reduction in conduit diameter shall take place two feet (2') from the external wall of the vault. **Refer to Section 4D**
Refer to Drawing # 1
- I. Contractor/Developer shall keep all debris away from IID's transformer pads, primary vaults, secondary pull boxes, and other IID equipment to give IID personnel access during the duration of the project.

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Transformer pads, junction pads, precast vaults, junction sleeves
Continued:

- J. The district will provide an underground energy inspector during the actual installation of conduit and vault systems. Any request for inspection on a project must be scheduled with the IID 24 hours prior to actual need. Failure on the part of the owner(s), developer(s) or contractor to schedule and/or an inspection and approval for any portion of the lighting or underground power systems, may result in the total rejection of the newly installed systems. **(inspection schedules are subject to a minimum 48 hour advance notice and are by appointment only – La Quinta (760) 398-5828; Imperial (760) 482-3300).**
- K. No other utility will be allowed to occupy the area under a transformer pad.
- L. Commercial Transformer Pads will not be installed until compaction report has been received and reviewed by IID inspector.
- M. Commercial Transformer Pad compaction will be performed 2' beyond pad size on all sides – no landscaping will be allowed including sprinkler systems with in the compacted area.

6. **Marking tape over conduit:**

- A. Contractor shall install 2" line guard III tape, red in color with black lettering "CAUTION BURIED ELECTRIC LINE BELOW" (**See Standard 100.5**)
- B. Contractor will install a caution tape 12" above the power ducts. (**See Standard 100.5**)

7. **Secondary pullbox:**

Secondary pullboxes must be as shown on the drawings.

Surface secondary pullbox utilized in all Imperial Irrigation District secondary construction. Reference Standard **181.1 – 181.11**

8. **Copperweld ground rods 5/8" x 10':**

- A. To comply with General Order 128, rule 21.5A, the contractor is required to provide and install, a minimum of two (2) 5/8" x 10' Copperweld ground rods shall be installed at each transformer pad and junction pad, and primary vault. (**See Standards in 8C for detail**)
- B. The developer will be responsible for driving any and all ground rods in the system that is a joint trench. This will be predetermined and completed before IID construction crews arrive on the job.
- C. Trench and pad grounding:
Single phase transformer reference Standard **190.2-190.21**
Three phase transformer reference Standard **190.3-190.31**
Single phase sector reference Standard **190.4-190.41**
Three phase sector reference Standard **190.5-190.51**

9. **Guard posts:**

- A. Guard posts shall be 4" diameter pipe schedule 40 black cold rolled steel, painted high visibility yellow.

See Standard **181.6** for concrete fill/foundation requirements and typical location of posts around IID equipment.

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10. Pulling rope:

A. In all duct runs, the installation contractor is to furnish and install the following:

Table 3 (Conduit Rope/Measured Rope Requirements for Primary Pulls)

CONDUIT ROPE/MEASURED ROPE REQUIREMENTS PRIMARY PULLS			
Rope Type	Conduit Length	Conduit which will contain Wire	Spare Conduits
a) Polyester 3/4"	501' – 1000'	No Splices	Splices Ok
b) Measuring Rope 1/2"	1' – 1000'	No Splices	Splices Ok

- a) Polyester rope usually yellow in color is acceptable
- b) Measuring rope will have one foot (1') increments clearly marked.
IID representative/inspector has final decision on type of rope to be utilized in conduit pulls.
Spare conduits may be filled with polyester rope with splices.
If pulling wire at a later date (any time after construction) Contractor is responsible and required to pull in new rope that has no splices
N/A = Not applicable

11. Stub outs:

Contractor shall obtain and install stub out markers comparable to the stub out marker indicated in Table 6.

Stubout conduit shall be a minimum of 10'. Refer to the job drawing for specific Stubout lengths.

Refer to Drawing 2 Stub out Detail

Table 6 (Stub Out Marker)

STUB OUT MARKER Table 6		
MANUFACTURE	PHONE NUMBER	PART NUMBER
ELECTROMARK	800-295-8247 ext. 222	POST-LX-1A-66R IMP065-G-RE-B41 IMP066-G-RE-RB1



Stub out Marker
66" x 4.25"



Front View
Top Portion

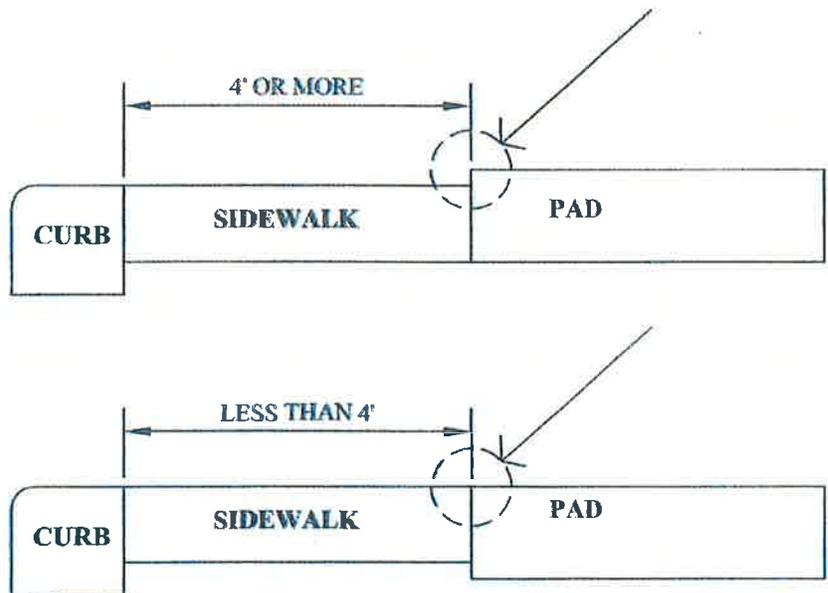


Back View
Top Portion

CSP/NOTIFICATION # 4018438
SERVICE ORDER # 60095913
SHEET 17 OF 34

14. Clearances:

- A. Clearances shall be measured from all above ground objects. Refer to Standard 100.16
- B. Clearances are required at the side(s) or end(s) of substructures, pad-mounted equipment, etc. IID pullboxes, vaults, and transformer pads may occupy or be installed within the required clearances. Provide a three foot (3') clearance for planting around pads and larger substructures to leave access to utility equipment so crews can do their work. Provide ten feet (10') clearance on working side of Imperial Irrigation District equipment. Working side = door or access side(s) of equipment.
- C. For equipment containing oil and capacitors next to combustible buildings, distance shall not be less than ten feet (10') from building windows and doors.
 - "Noncombustible" Building surfaces or materials approved by the uniform building code as having a minimum fire rating one hour include but are not limited to: Steel studded drywall, steel studded stucco or other materials on steel studs having minimum fire rating of one hour, brick, clay, tile, concrete, iron, steel, and stone. IID equipment requires three foot (3') clearance.
 - "Combustible" Building surfaces or materials include but are not limited to: Wood studded stucco and wood studded drywall. IID equipment requires three foot (3') clearance.
- D. Pads are permitted in the sidewalks provided the walk is wider than 4 feet (4') not including the curb. A four foot (4') useable walkway (not including curb) must be provided for wheelchair access. Do not install in trails such as bike, jogging walking, equestrian, etc. (Top of transformer pad when installed in sidewalk when less than four feet (4') must be level with finished sidewalk to eliminate tripping hazard.)

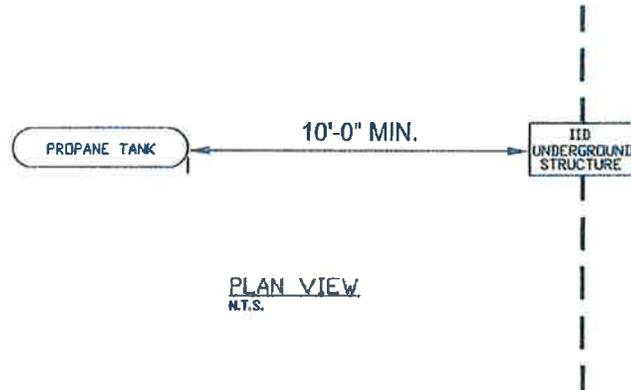


CSP/NOTIFICATION # 4018438
SERVICE ORDER # 60095913
SHEET 18 OF 34

Clearances continued:

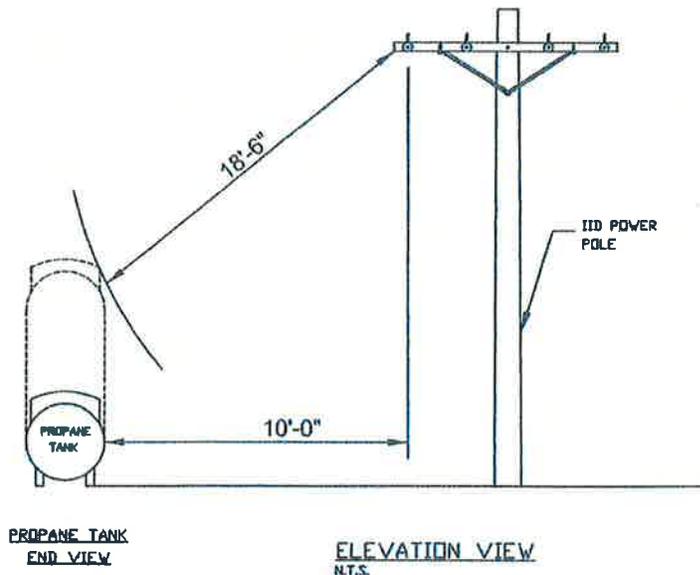
UNDERGROUND

- E. Any Imperial Irrigation District underground high voltage structure i.e. transformer, switch, capacitor bank, etc., and secondary voltage metering equipment shall maintain a 10 foot radial clearance from any commercial propane tank, vent, or fill-tube that contains flammable liquids, gases, vapors, or mixtures. Refer to NFPA 58 section 6.3 Containers Separation Distances.

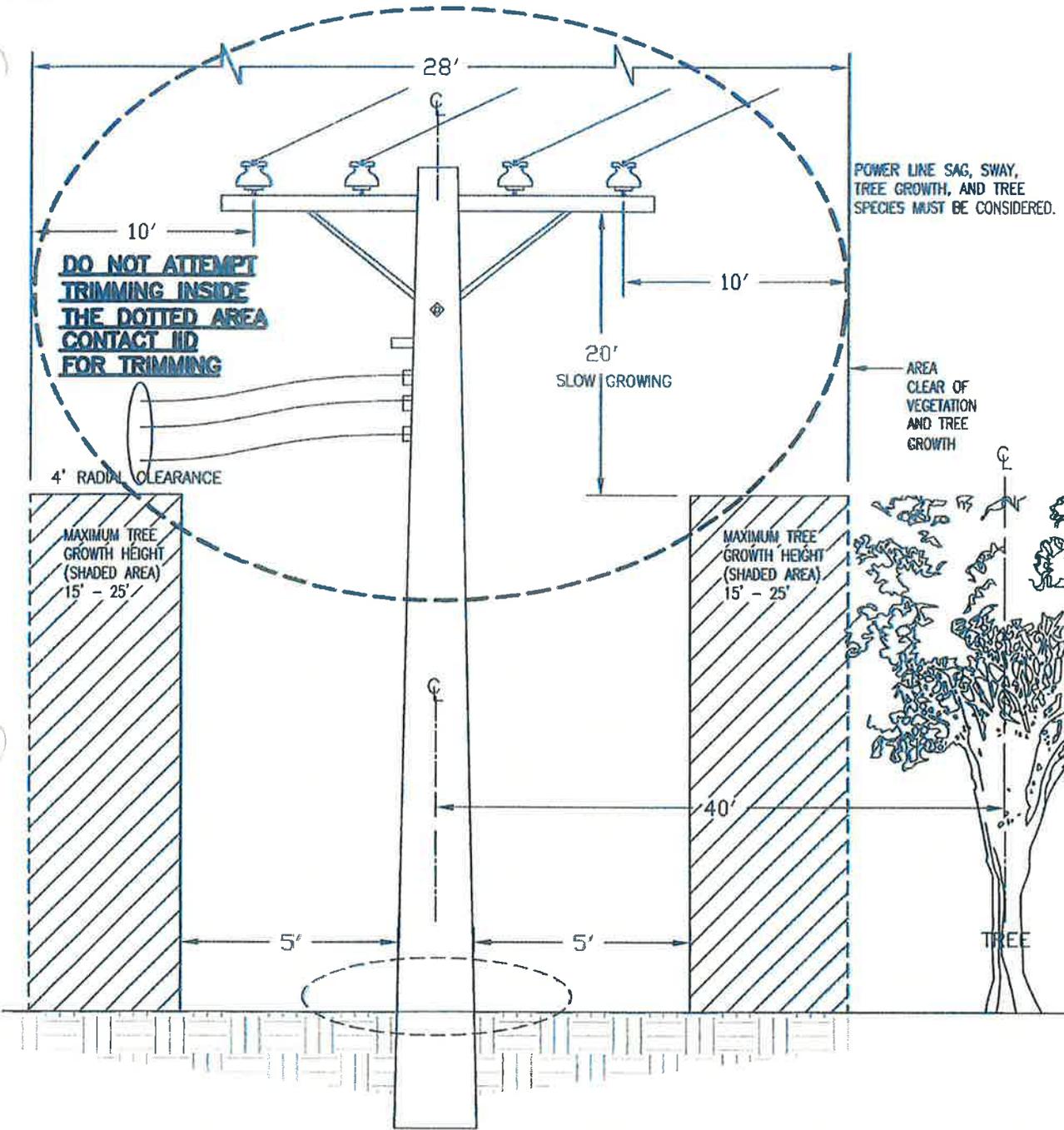


OVERHEAD

- F. Any Imperial Irrigation District overhead primary pole or conductor transformer, switch, capacitor bank, etc., and secondary service, meter, etc. shall maintain 18 feet and 6 inches radial clearance from any commercial propane tank, vent, or fill-tube that contains flammable liquids, gases, vapors, or mixtures. Overhead primary or secondary conductors are not to cross over the propane tank even if the height is above the 18 feet and 6 inches radius. Refer to NFPA 58 section 6.4.5.12 Other Container Location Requirements.



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10' DIA. FOR POLE CLEARANCE CLIMB
N.T.S.

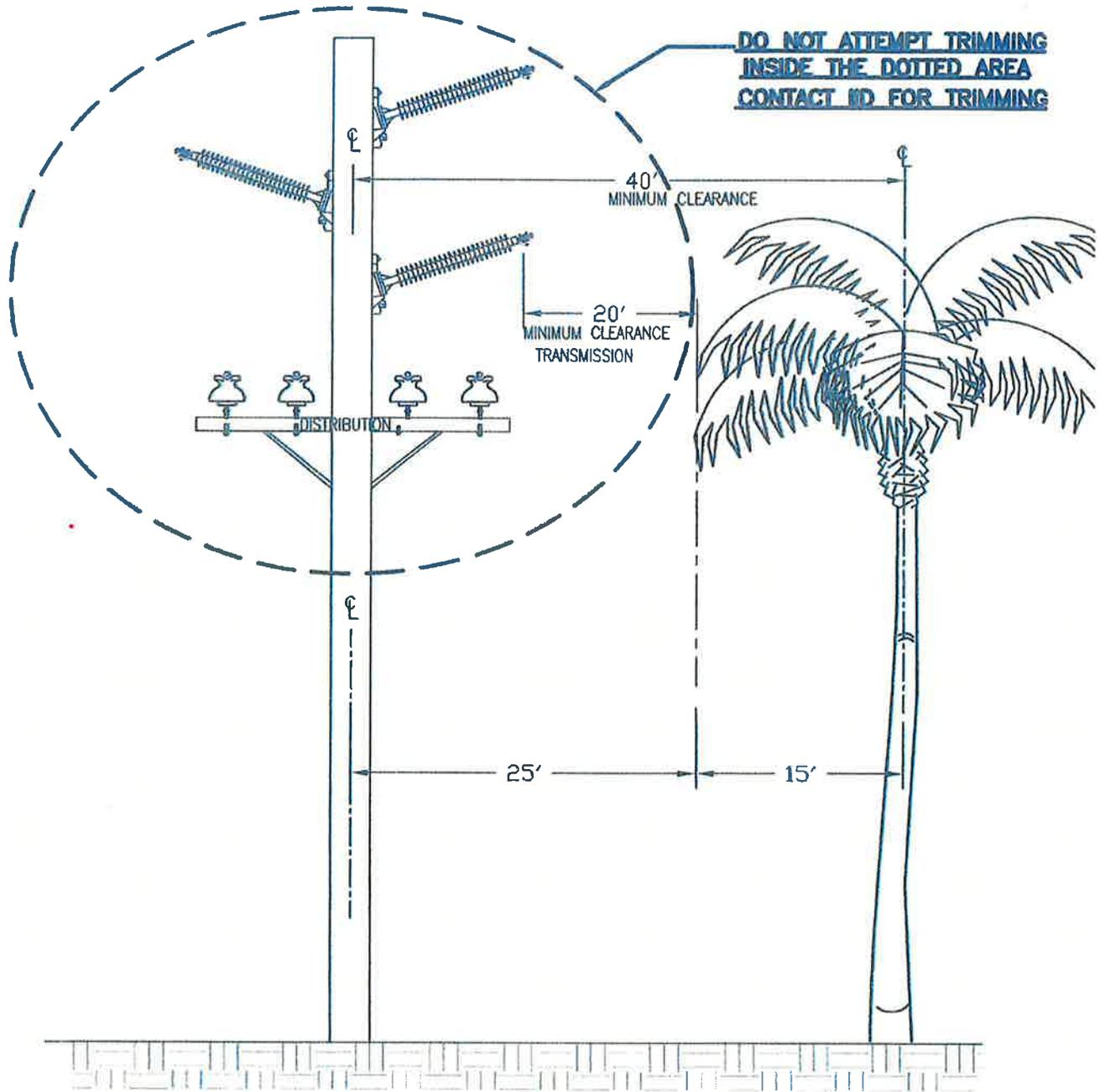
NOTES:

1. FOR NEW CONSTRUCTIONS, IT IS REQUIRED TO PLANT TREES 40' AWAY FROM POLES.
2. AN UNMANAGEABLE TREE, ALSO REFERRED TO AS A "CYCLE BUSTER," IS DEFINED AS ANY FAST GROWING TREE WITH A GROWING RATE OF 10' ft OR MORE PER YEAR. ANY UNMANAGEABLE TREE ENCROACHING IID'S POWER LINES OR FACILITIES AND WHICH HAS NOT CONFORM TO ANY MODERN DIRECTIONAL PRUNNING TECHNIQUES AFTER REPETITIVE PRUNNING WILL BE REMOVED.

	IID OVERHEAD DISTRIBUTION STANDARDS RECOMMENDED MINIMUM LINE CLEARANCE FOR TREES				
	T. KING APPROVED	M. GAPPINGER CHAIRMAN/STANDARDS	01-04-10 DATE	01 REV. No.	N.T.S. SCALE

CSP/NOTIFICATION # 4018433
 SERVICE ORDER # 60095913
 SHEET 20 OF 34

DATE-PALM TREE(S)



NOTE:

1. PALM TREES CAN AND WILL TOWER TO HEIGHTS UP TO 65' AND 70'. THEY ARE CONSTANTLY TRIMMED AND HARVESTED BY DATE TREE WORKERS AND ARE POPULAR IN COUNTRY CLUBS. IN THE INTEREST FOR WORKER SAFETY AND POWER SUPPLY DEMAND, THE ABOVE MENTIONED CLEARANCES ARE BETWEEN OUTSIDE CONDUCTORS AND THE TIPS OF PALM FRONCS.

IID OVERHEAD DISTRIBUTION STANDARDS RECOMMENDED DATE-PALM TREE MINIMUM LINE CLEARANCE					
N.T.S.	01	01-04-10	M. GAPPINGER <i>MG</i>	T. KING <i>TK</i>	
N.T.S.	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED	

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 21 OF 34

TRANSFORMER BANK-UG

- UNDERGROUND TRANSFORMER, ABC
- UNDERGROUND TRANSFORMER, A, B, AND C
- SUBMERSIBLE

SURFACE STRUCTURE-UG

- SECTOR CABINET
- PEDESTAL
- XFMR PAD
- TRANSCLOSURE
- CIRCUIT BRKR PAD
- SWITCH AND CAPACITOR PAD

UNDERGROUND STRUCTURE-UG

- SECONDARY PULLBOX
- VAULT, SMALL
- VAULT, MEDIUM
- VAULT, LARGE

SWITCH CABINET-UG

- SWITCH CABINET
- UNDERGROUND SWITCH
- ELBOW/T-BODY ELBOW (SCALED UP)

CAPACITOR BANK-UG

- UNDERGROUND CAPACITOR
- ==== INDICATES AREA TO BE CONCRETE ENCASED

PRIMARY UG CONDUCTOR

- SINGLE PHASE PRIMARY UNDERGROUND
- TWO PHASE PRIMARY UNDERGROUND
- THREE PHASE PRIMARY UNDERGROUND
- THREE PHASE PARALLEL PRIMARY UNDERGROUND
- BUS BAR

SECONDARY-UG-CONDUCTOR

- SINGLE PHASE SECONDARY UNDERGROUND
- THREE PHASE SECONDARY UNDERGROUND
- UNDERGROUND SERVICE
- UNDERGROUND STREETLIGHT CONDUCTOR

POLE

- WOOD POLE
- H-FRAME, 2 POLE
- H-FRAME, 3 POLE
- NON-WOOD POLE
- SL STANDARD
- VIRTUAL POLE
- STEEL TOWER

FUSES

- OVERHEAD FUSE

MISCELLANEOUS FEATURE

- RISER
- FAULT INDICATOR
- REMOTE CURRENT SENSOR

MISC NETWORK FEATURE

- OPEN POINT
- DOUBLE DEAD END JUMPER

TRANSFORMER BANK-OH

- OVERHEAD TRANSFORMER, A, B, AND C
- OVERHEAD TRANSFORMER, AB,AC,BC
- OVERHEAD TRANSFORMER, ABC
- STEP TRANSFORMER

CAPACITOR BANK-OH

- OVERHEAD CAPACITOR

LIGHT

- SECURITY LIGHT/STREET LIGHT
- STREET LIGHT ON STEEL STRUCTURE
- STREET/RURAL LIGHT ON WOOD POLE

DYNAMIC PROTECTIVE DEVICE BANK

- CIRCUIT BREAKER
- RECLOSER
- SECTIONALIZER

REGULATOR BANK

- REGULATOR BANK

SWITCH

- OVERHEAD SWITCH-GANG & NON-GANG
- OVERHEAD SWITCH GANG
- OVERHEAD SWITCH NON-GANG
- AUTOMATIC TRANSFER
- SUBSTATION SWITCH

SERVICE LOCATION

- SERVICE POINT
- PRIMARY METER

SUBSTATION

- SUBSTATION

GENERATOR

- GNC
- PHOTO VOLTAIC
- SOLAR
- WIND

DOWN GUY

- DOWN GUY, SINGLE DOWN GUY
- DOWN GUY, TWO DOWN GUY
- DOWN GUY, THREE DOWN GUY
- SIDEWALK GUY
- SPAN GUY, # SYMBOL REPRESENTS # OF GUYS

PRIMARY-OH-CONDUCTOR

- SINGLE PHASE PRIMARY OVERHEAD
- TWO PHASE PRIMARY OVERHEAD
- THREE PHASE PRIMARY OVERHEAD
- SUBSTATION BUS BAR

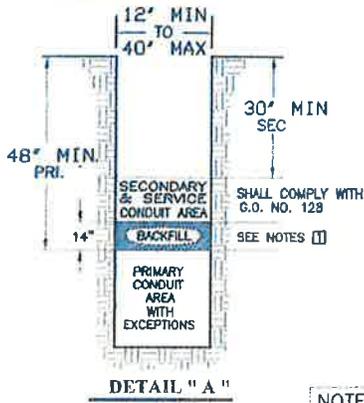
SECONDARY-OH-CONDUCTOR

- SINGLE PHASE SECONDARY UNDERGROUND
- THREE PHASE SECONDARY UNDERGROUND
- OVERHEAD SERVICE
- OVERHEAD STREETLIGHT CONDUCTOR

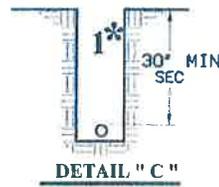
IID UNDERGROUND DISTRIBUTION STANDARDS					
IID ELECTRIC SYMBOL LEGEND					
N.T.S.	REV 4	06-10-09	M. GAPPINGER <i>MG</i>	T. KING <i>TK</i>	
SCALE	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED	

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
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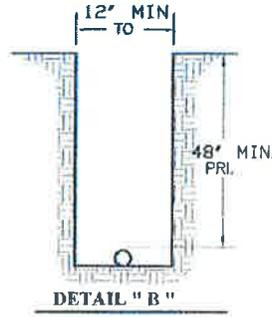
PRIMARY & SECONDARY



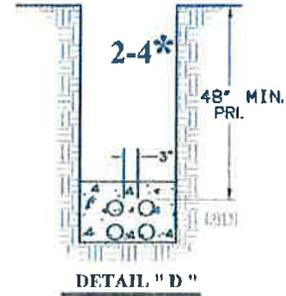
SECONDARY



PRIMARY

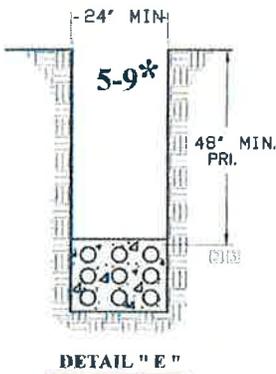


PRIMARY

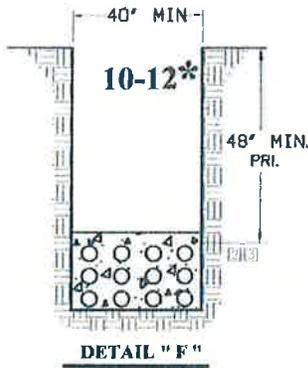


NOTE: THESE ARE TYPICAL TRENCH DETAILS THAT ARE TO BE USED FOR STACK FORMATION PURPOSES ONLY. MIN. DEPTH WILL BE (PRI. 48", SEC. 30") AT ANY DEPTH.

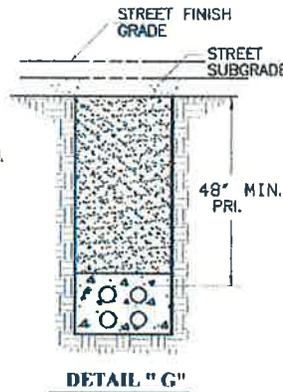
PRIMARY



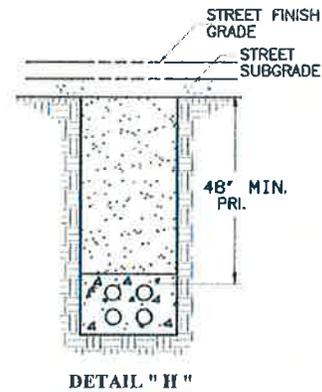
PRIMARY



COMPACTION BACKFILL



2-SACK SAND SLURRY



GENERAL INSTALLATION NOTES

- USE PLASTIC SPACERS THAT PROVIDE 3" SEPARATION.
- PLASTIC SPACERS SHALL BE USED ON CONDUIT RUNS TO BE CONCRETE ENCASED BOTH AS SINGLE OR BANKED INSTALLATIONS AND ON DUCT BANKS NOT ENCASED. (REFER TO CONTRACTORS NOTE 2C.)
- CONDUIT RUNS SHALL NOT CROSS EACH OTHER WHEN ON THE SAME LEVEL AND/OR PLANE. (REFER TO CONTRACTORS NOTE 4A.)
- THE MAXIMUM OBTAINABLE SEPARATION BETWEEN POWER FACILITIES AND ALL OTHER SUBSTRUCTURES SHALL BE MAINTAINED AT ALL TIMES, 12" MIN. WHEN PARALLELING AND 12" MIN. WHEN CROSSING ENCASED IN CONCRETE.
- WHEN CONCRETE ENCASEMENT IS SPECIFIED ON THE JOB, ENCASEMENT SHALL BE A 3 SACK MIX (2000 PD) WITH SAND SLURRY WILL BE USED BELOW STREETS, PARKING LOTS, DRIVEWAYS, AND SIDEWALKS. WHEN STREETS, PARKING LOTS, DRIVEWAYS, AND SIDEWALKS DO NOT EXIST OVER THE DUCT SYSTEM, A 2 SACK SAND SLURRY MAY BE USED. REFER TO NOTE #4 CONTRACTOR NOTES STANDARD PAGE NUMBER 100.1
- ENCASE IN CONCRETE 3" ENVELOPE WHERE REQUIRED. SEE CONDUIT LAYOUT SHEETS (JOB COPY) FOR LOCATION OF CONCRETE TRENCHES.
- LINE GUARD TAPE REQUIRED IN ALL TRENCHES. SEE STANDARD 100.5

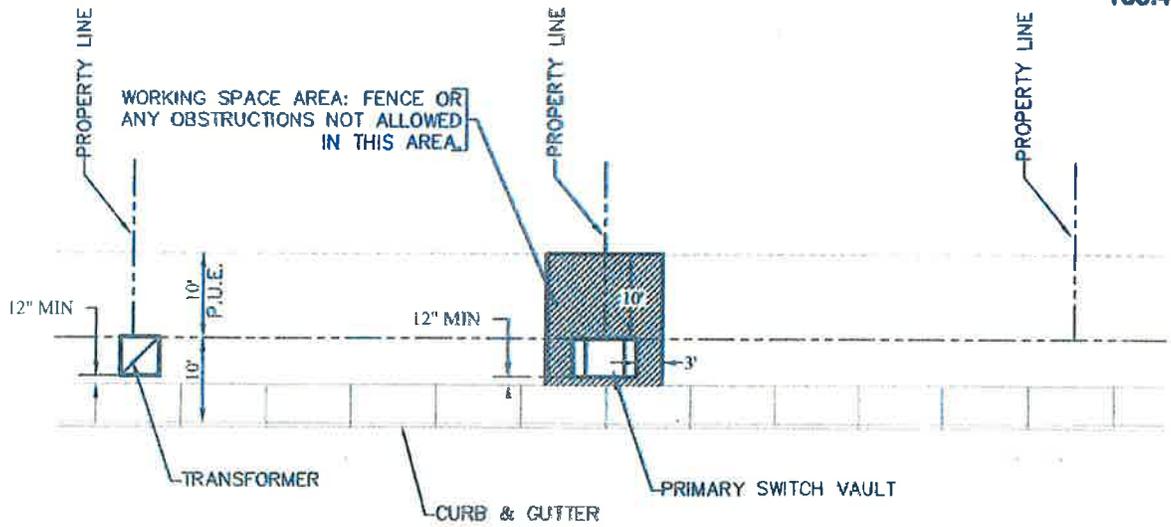
*IDENTIFY # OF CONDUITS (SEE SHEET 2A OF 34)

LEGEND

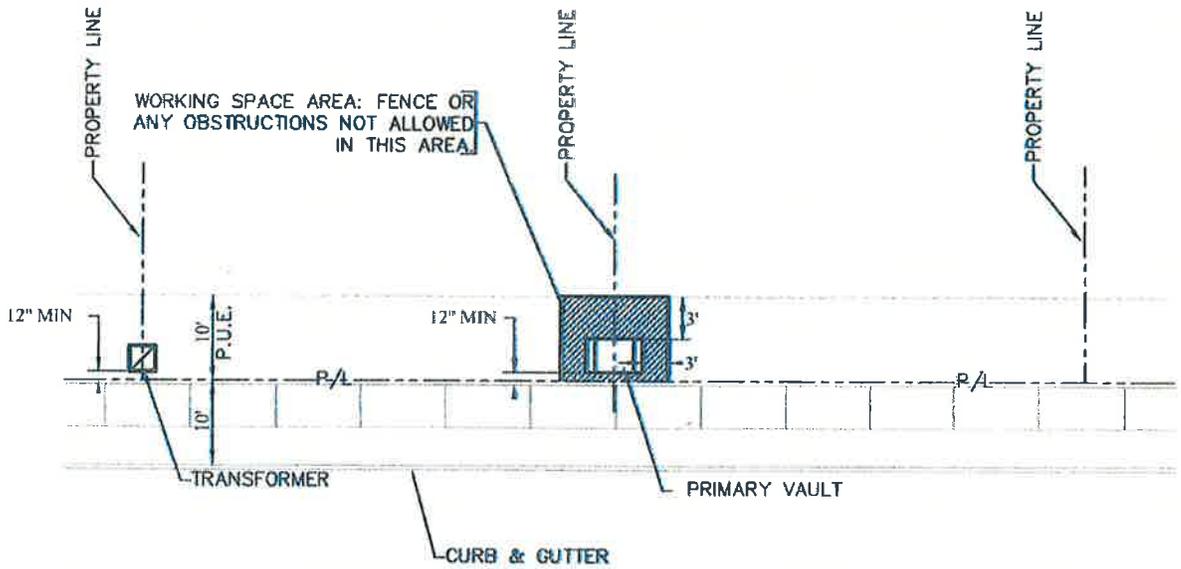
- CONDUIT
- 3 SACK MIX SAND SLURRY
- 2 SACK SAND SLURRY
- 90% COMPACTION BACKFILL

	IID UNDERGROUND DISTRIBUTION STANDARDS				
	TRENCH DETAILS				
T. KING APPROVED	M. GAPPINGER CHAIRMAN/STANDARDS	11-10-09 DATE	REV 04 REV. No.	N.T.S. SCALE	

CSP/NOTIFICATION # 4018438
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CURB GUTTER SIDEWALK PARKWAY



CURB GUTTER PARKWAY SIDEWALK

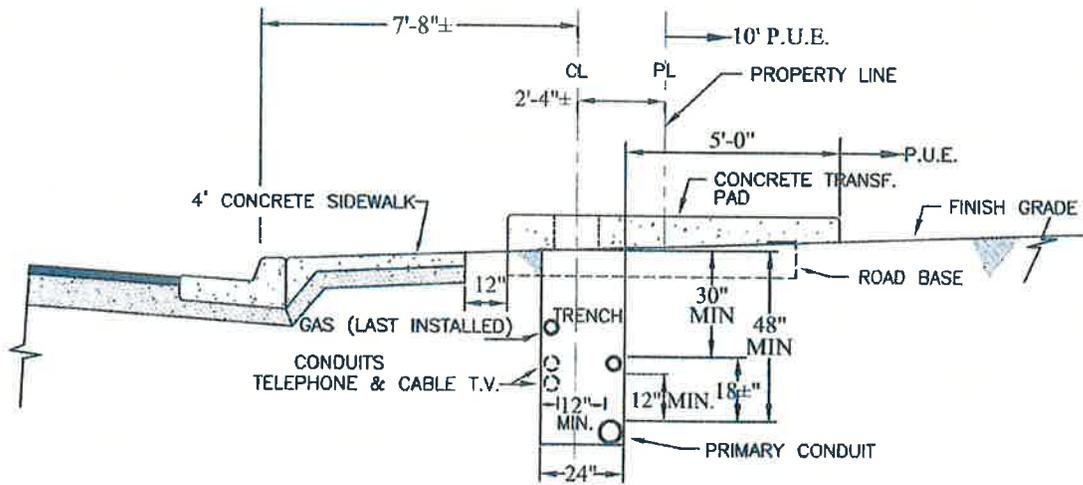
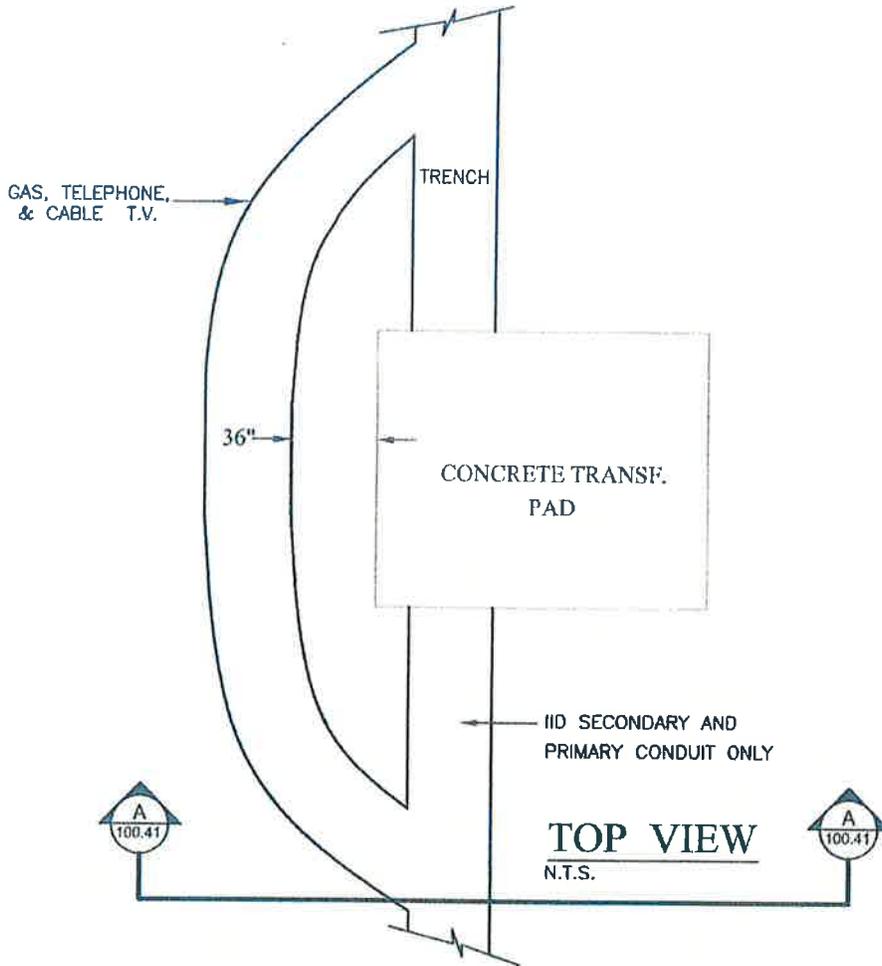
NOTES:

1. Any/All installations of IID facilities within any public street right-of-way shall be done via encroachment permit from local jurisdiction agency, i.e. City, County, etc.;
2. Any/All installations of IID facilities within a dedicated Public Utility Easement (P.U.E.) shall be made in accordance with P.U.E. as shown on said (subdivision) map, i.e. 10' P.U.E. adjacent to public street right-of-way, etc.;
3. Any/All installations of IID facilities within private property shall be done via easement or other satisfactory authorization from vested owner of said property.

Please consult IID Real Estate Section for clarification concerning the above. at (760)339-9239.

IID UNDERGROUND DISTRIBUTION STANDARDS					
IID FACILITY INSTALLATION					
1"=20'	REV 08	11-10-09	M. GAPPINGER <i>MG</i>	T. KING <i>TK</i>	
SCALE	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED	

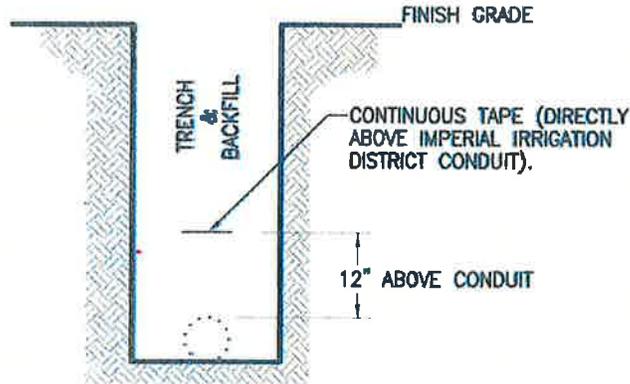
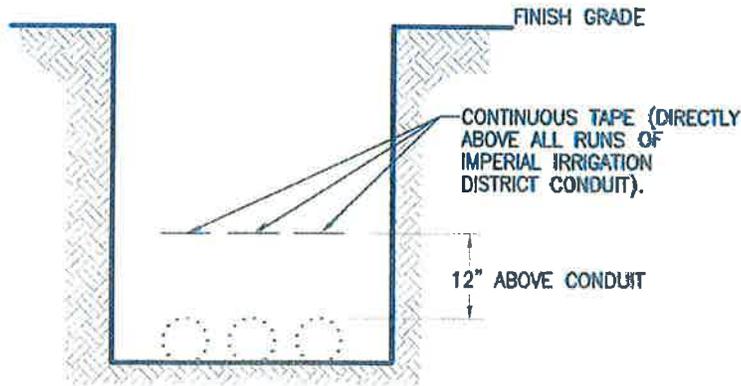
CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 24 OF 34



SECTION VIEW **A - A**

	IID UNDERGROUND DISTRIBUTION STANDARDS JOINT UTILITY (GAS INCLUDED) - TRENCH DETAIL, CURB, GUTTER, SIDEWALK, 10FT. PARKWAY WITH 10 FT. P.U.E.				
	T. KING APPROVED	M. GAPPINGER CHAIRMAN/STANDARDS	11-02-09 DATE	REV 05 REV. No.	1/8"=1'-0" SCALE

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
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TYPICAL TRENCH DETAIL
W/LINEGUARD III TAPE OR EQUAL

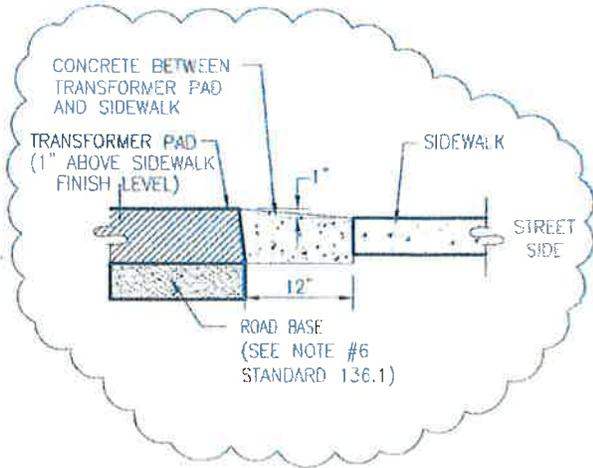
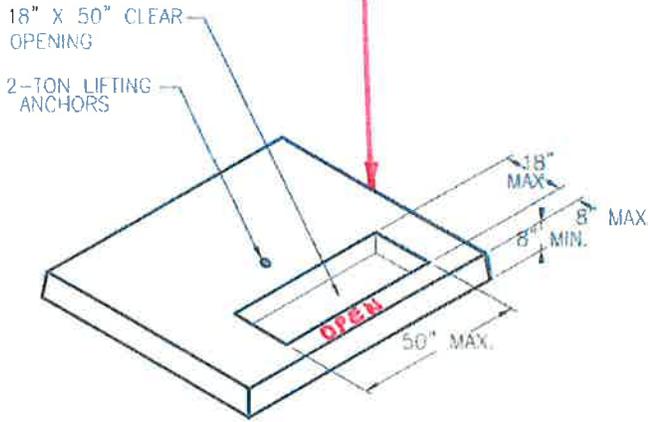
NOTE:

1. INSTALL LINE GUARD III TAPE (RED, MINIMUM 2" WIDE).
"CAUTION: BURIED ELECTRIC LINE BELOW".
 TAPE TO BE FURNISHED & INSTALLED BY CONTRACTOR.
2. TAPE INSTALLED 12" ABOVE HIGHEST PRIMARY OR SECONDARY IMPERIAL IRRIGATION DISTRICT CONDUIT TRENCH.

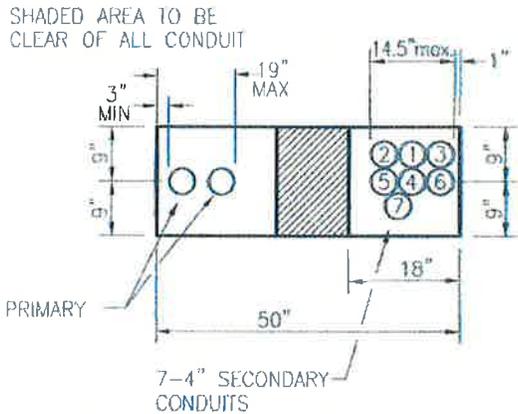
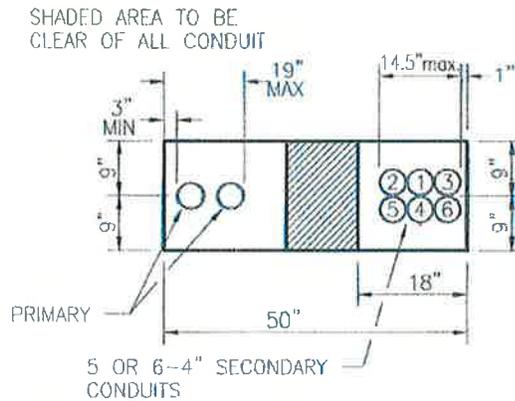
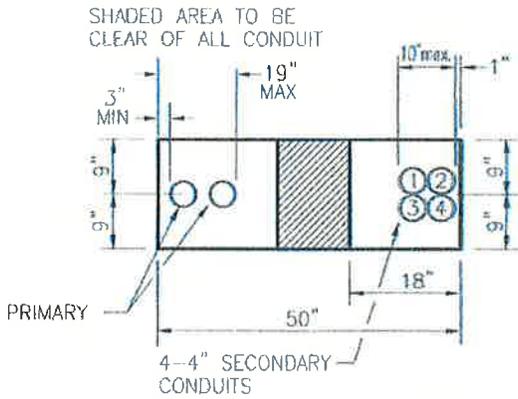
	IID UNDERGROUND DISTRIBUTION STANDARDS					
	LINE GUARD III TAPE					
	T. KING APPROVED	TK	M. GAPPINGER CHAIRMAN/STANDARDS	MLG	12-07-09 DATE	REV 04 REV. No.

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 26 OF 34

TRANSFORMER PAD #UM-1224002



*NOTE: EXACT MEASUREMENT IS DEPENDENT UPON MANUFACTURER SPECIFICATIONS. SEE STANDARD 136.1, CONSTRUCTION NOTE 2. APPROVED MANUFACTURERS AND STRUCTURERS.



	IID UNDERGROUND DISTRIBUTION STANDARDS PRECAST CONCRETE PAD DETAIL FOR THREE-PHASE TRANSFORMERS 45 KVA TO 500 KVA				
	T. KING APPROVED	M. GAPPINGER CHAIRMAN/STANDARDS	09-17-08 DATE	REV 06 REV. No.	N.T.S. SCALE

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 27 OF 34

CONSTRUCTION NOTES:

1. A PRECAST CONCRETE SHALL BE USED.
2. APPROVED MANUFACTURERS AND STRUCTURES:

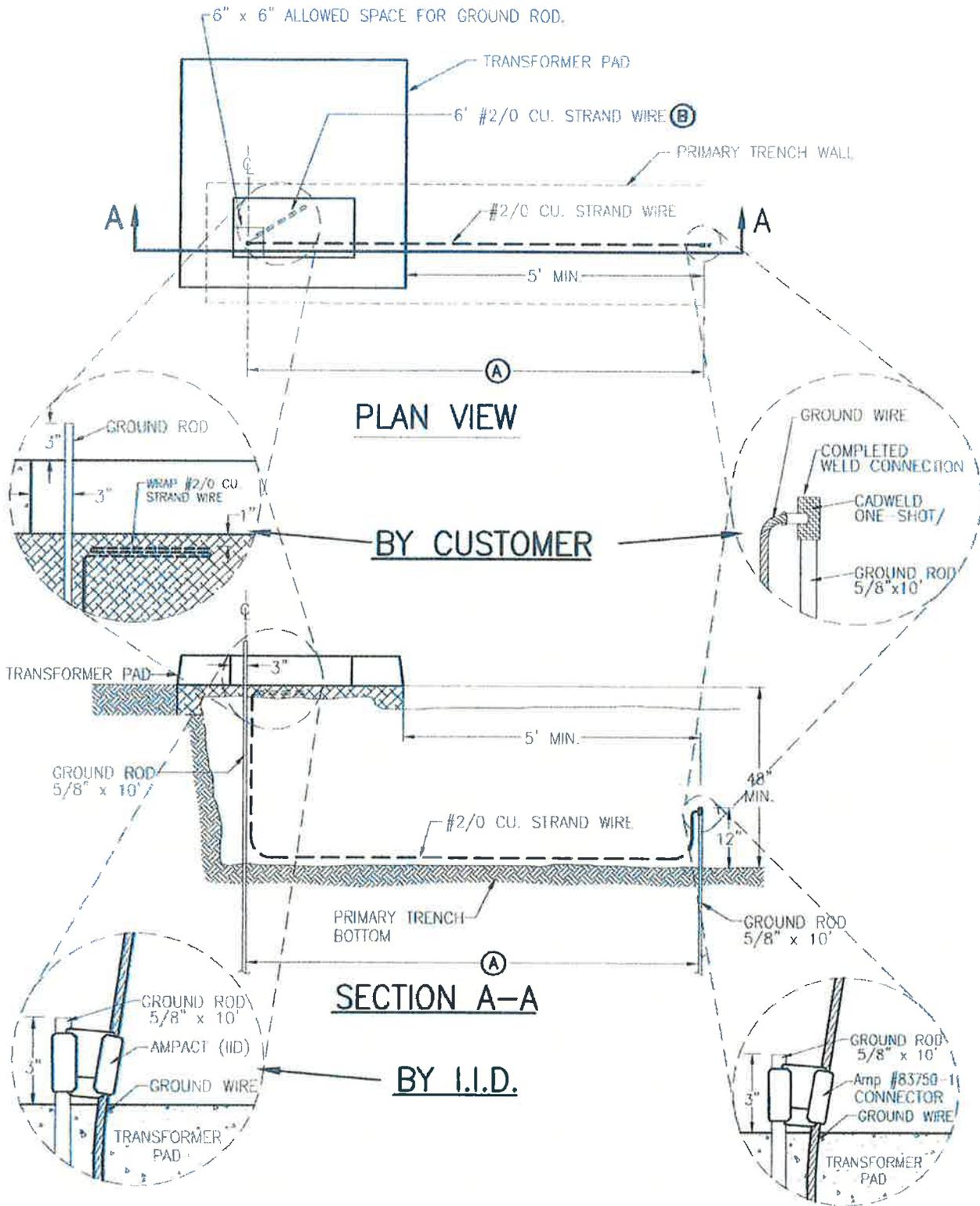
45KV - 500KV TRANSFORMER PAD			
MANUFACTURER	PHONE No.	STRUCTURE No.	FRONT/SIDE/THICKNESS DIMENSIONS
HLR RYERSON	(760)352-4341	3426 HLR	94"(F) X 73"(S) X 6"(T)
JENSON PRECAST	1-800-257-6100	PD7394-T8-25	94"(F) X 73"(S) X 8"(T)
OLD CASTLE	1-800-626-3860	IID-7296-8-TP	96"(F) X 72"(S) X 8"(T)
U.S. CONCRETE	(619)449-6810	7296TP-IID	96"(F) X 72"(S) X 8"(T)

(F) = FRONT (S) = SIDE (T) = THICKNESS

3. CONTRACTOR TO PROVIDE TWO 5/8"x 10' COPPERWELD GROUND RODS PER PAD (INSTALLATION BY CONTRACTOR.)
4. SIZE AND NUMBER OF CONDUITS IN EACH PAD TO BE AS SHOWN ON CONDUIT LAYOUT.
5. ANCHORAGE TO BE SET BY I.I.D. WHEN TRANSFORMER IS INSTALLED.
6. CONTRACTOR SHALL PROVIDE & INSTALL 6" OF ROADBASE MATERIAL UNDERNEATH TRANSFORMER PAD, AND COMPACT ALL ROADBASE UNDERNEATH TRANSFORMER PAD TO A MINIMUM COMPACTION OF 90% AND A MAXIMUM OF 95%. SEE STANDARD 136.
7. CONDUITS TO TERMINATE 1" ABOVE TOP OF TRANSFORMER PAD.

IID UNDERGROUND DISTRIBUTION STANDARDS PRECAST CONCRETE PAD DETAIL FOR THREE-PHASE TRANSFORMERS 45 KVA TO 500 KVA				
N.T.S.	REV 06	06-04-09	M. GAPPINGER <i>MG</i>	
SCALE	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED

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	IID UNDERGROUND DISTRIBUTION STANDARDS TRENCH GROUND WIRE FOR THREE PHASE TRANSFORMERS (BY CUSTOMER)				
	T. KING APPROVED	M. GAPPINGER CHAIRMAN/STANDARDS	10-10-06 DATE	REV 06 REV. No.	N.T.S. SCALE

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 29 OF 34

CONSTRUCTION NOTES:

- (A) GROUND RODS TO HAVE A 6'-0" MINIMUM SEPARATION.
- (B) WRAP 6' OF WIRE (NOT EXPOSED) 1" UNDERGROUND NEXT TO GROUND ROD.
- (C) LOCATE GROUND RODS SO THEY DO NOT TOUCH CONDUITS. GENERAL ORDER 128 REQUIRES GROUND RODS TO BE DRIVEN.

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	STOCK No.	PAGE No.
1	1	CONCRETE PAD, SEE STANDARD 136 THRU 137		
2	1	CADWELD, ONE-SHOT/Amp CONNECTOR #83750-1	40003365	
3	20'	WIRE - COPPER #2/0 STRAND, SOFT DRAWN BARE	40004222	
4	2	GROUND ROD, 5/8" x 10', COPPERWELD	40003814	

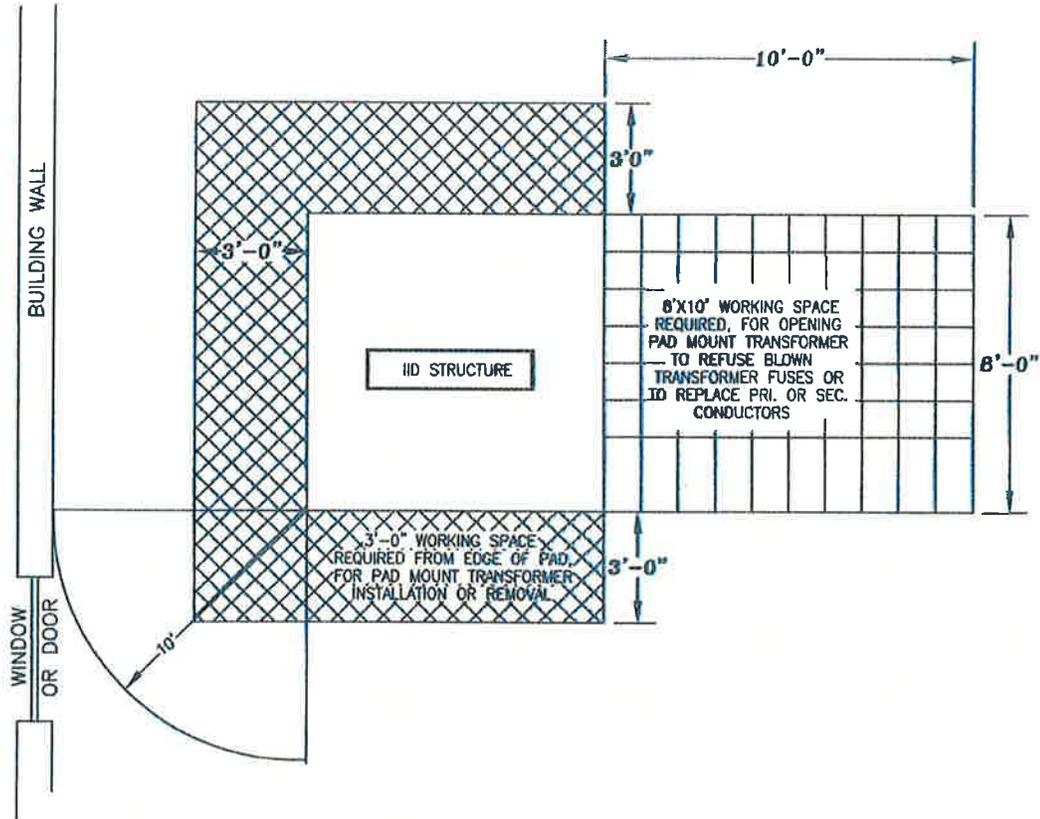
NOTES:

THE SERVICE TRENCH IS ON PRIVATE PROPERTY AND BELONGS TO THE CUSTOMER, THEREFORE, THE TRENCH GROUND WIRE SHOULD ALWAYS BE INSTALLED IN THE PRIMARY TRENCH.

IID UNDERGROUND DISTRIBUTION STANDARDS TRENCH GROUND WIRE FOR THREE PHASE TRANSFORMERS (BY CUSTOMERS)				
N.T.S.	REV 05	09-18-08	M. GAPPINGER <i>MG</i>	
SCALE	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED

CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
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Clearances continued, Drawing:



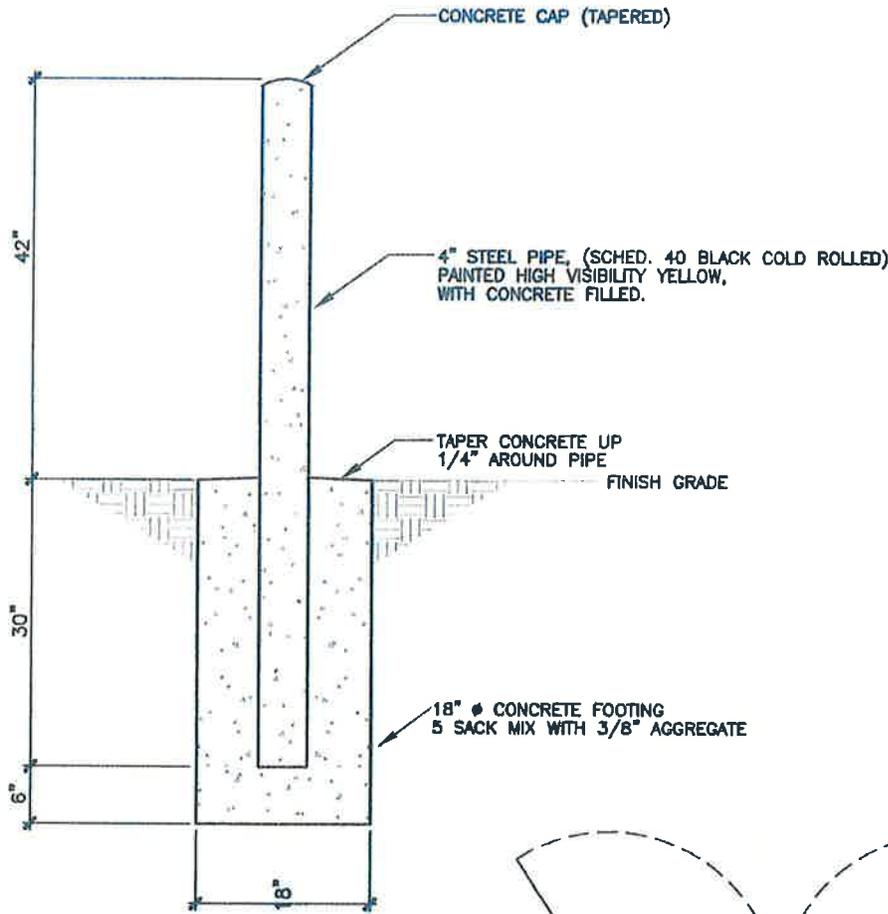
Notes:

1. See Clearance Section 14A
2. No window or door shall be within 10' radius of oil filled equipment.

IID UNDERGROUND DISTRIBUTION STANDARDS				
IID EQUIPMENT LOCATION				
N.T.S.	REV 05	11-19-09	M. GAPPINGER <i>MG</i>	T. KING <i>TK</i>
SCALE	REV. No.	DATE	CHAIRMAN/STANDARDS	APPROVED

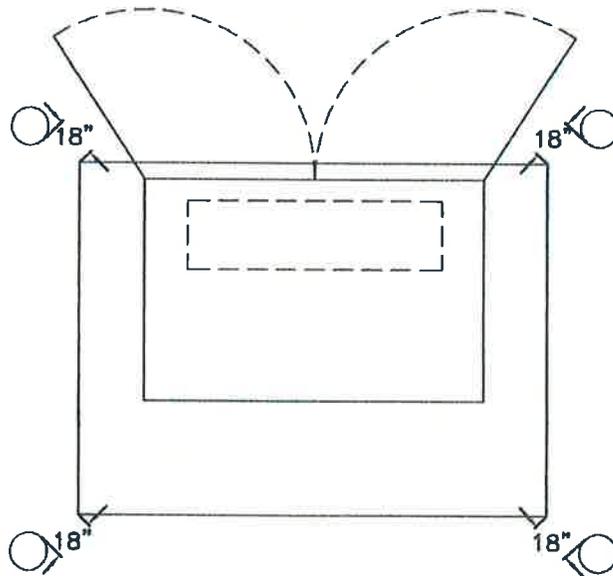


CSP/NOTIFICATION # 4018438
 SERVICE ORDER # 60095913
 SHEET 31 OF 34



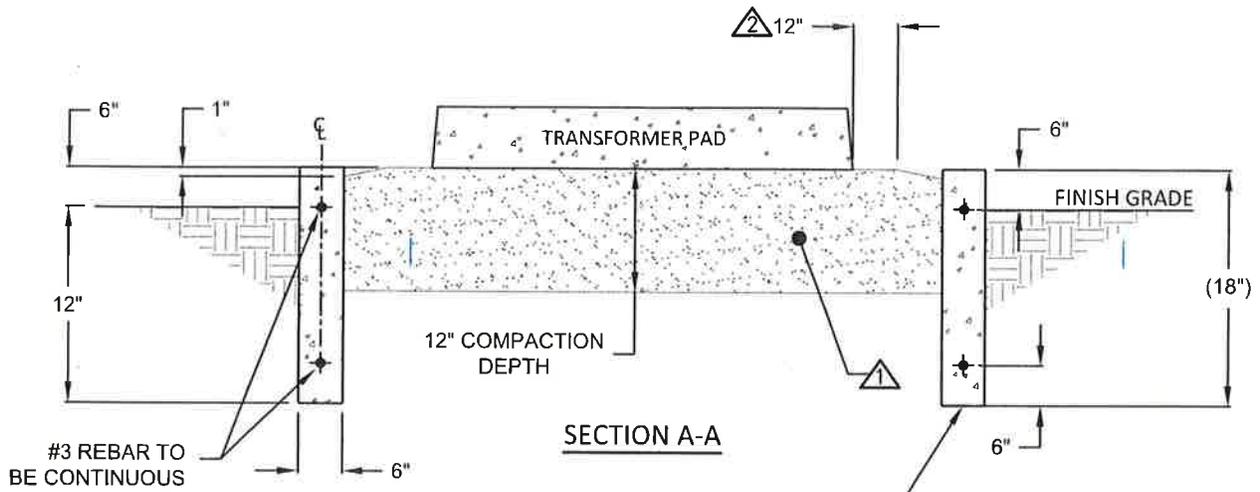
BARRIER POST

NOTE
REMOVABLE BARRIER POSTS
ARE NOT ALLOWED

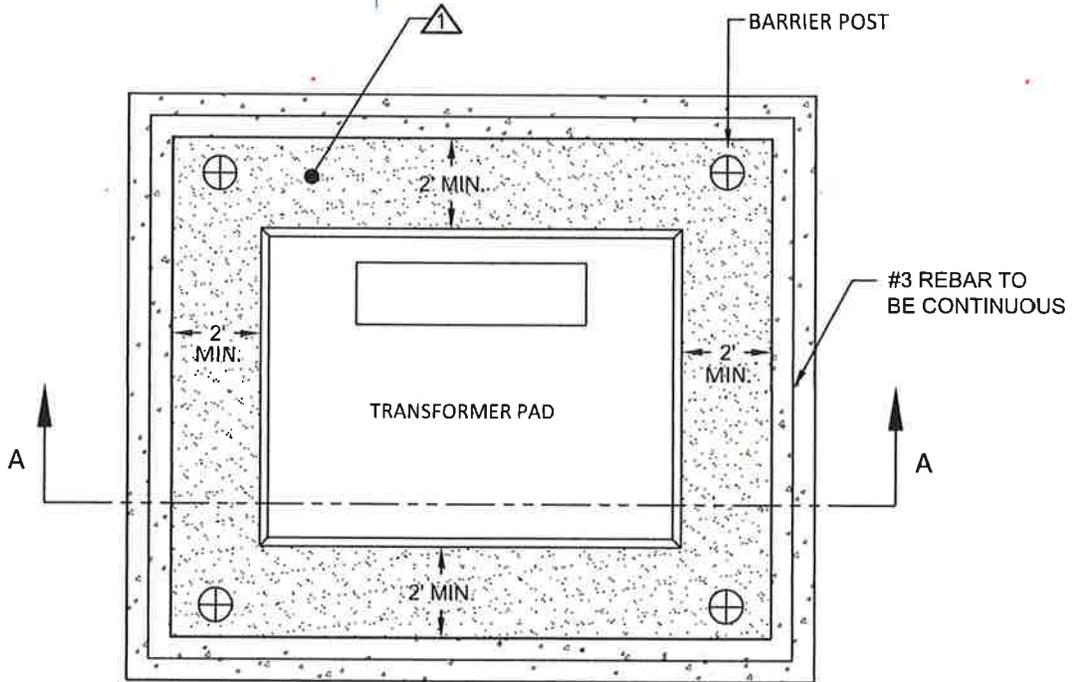


	IID UNDERGROUND DISTRIBUTION STANDARDS TYPICAL BARRIER POST IID FACILITY VIEW				
	T. KING APPROVED	TK	M. GAPPINGER CHAIRMAN/STANDARDS	12-14-09 DATE	REV 04 REV. No.

CSP/NOTIFICATION # 401843B
 SERVICE ORDER # 60095913
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2 SACK MIX WITH 3/8" AGGREGATE



PLAN VIEW

NOTES:

⚠️ COMPACTED AREA SHALL BE CALTRANS CLASS 2 AGGREGATE BASE OR CRUSHER FINES WITH 3/8" ROCKS. REFER TO CONTRACTORS NOTES TRANSFORMER PRECAST PADS, PRECAST VAULTS, SECTOR SLEEVES SECTION L (b).

⚠️ A MAXIMUM OF 1/2" OF SAND FILL WILL BE APPROVED FOR LEVELING OF COMPACTION AREA. (REFER TO CONTRACTORS NOTES TRANSFORMER PRECAST PADS, PRECAST VAULTS, SECTOR SLEEVES SECTION L(f) NOTE "i").

IMPERIAL IRRIGATION DISTRICT	
DRAWN BY	<i>JR</i>
REVIEWED	<i>PS</i>
APPROVED	<i>MS</i>
REVISION	REV 2
DATE	7-02-2014



TRANSFORMER PAD
CONCRETE RE-ENFORCEMENT
CURB DETAIL

100.9

CSP/NOTIFICATION # 4018438
SERVICE ORDER # 60095913
SHEET 34 OF 34



GOOD

~~NO GOOD~~

