DOCKETED	
Docket Number:	09-AFC-08C
Project Title:	Genesis Solar Energy Project
TN #:	224664
Document Title:	Petition to Amend for Aqueous Ammonia Systems for Units 1 and 2
Description:	GSEP Petition to Amend (PTA) requesting to install an aqueous ammonia system, with 3,150 gallon tank, for both Units 1 and 2
Filer:	Eric Veerkamp
Organization:	Nextera Energy Resources
Submitter Role:	Applicant
Submission Date:	9/7/2018 12:46:52 PM
Docketed Date:	9/7/2018

NEXTera ENERGY RESOURCES
11995 Wiley's Well Road
PO Box 2370
Blythe, Ca 92226

August 31, 2018

Mr. Eric Veerkamp
Compliance Project Manager
1516 9th Street, MS 2000
Sacramento, CA. 95814

RE: Petition to Amend, Aqueous Ammonia Tank Upgrade and Installation

Dear Eric,

The Genesis Staff is hereby submitting the Petition to Amend upgrading the new Aqueous Ammonia System. The enclosed documentation describes the design and plans for the upgrade. Also included in the documentation is the completed petition form and the Risk Management Plan (RMP).
The required fee of $5,000.00 dollars (check) is also enclosed.

Please feel free to contact me with any questions.

Sincerely,

Eric Preher
General Plant Manager

Cc:

Genesis Solar, LLC

(9-AFC-8)

Petition to Amend

Submitted by

Genesis Solar, LLC

Aug 2018

Table of Contents

Content

Genesis Solar, LLC, as project owner, petitions the California Energy Commission (CEC or Commission) to comply with the Conditions of Certification for the project. Genesis Solar LLC requests authorization to construct an aqueous ammonia storage system at each unit which includes a 3,150-gallon aqueous ammonia storage tank, 16' x 16' covered containment pad, fill head and truck unloading station. The applicable Conditions of Certification are: COMPLIANCE-13, GEN-1, GEN-8 and STRUC-1.

Executive Summary

Genesis Solar, LLC as project owner, petitions the California Energy Commission (CEC or Commission) to comply with the Condition of Certification COMPLIANCE-13, GEN-1, GEN-8 and STRUC-1 regarding the manner of regulation of new construction at the Genesis Solar Facility. Genesis Solar, LLC proposes to construct an aqueous ammonia storage system at both Unit 1 and Unit 2 power blocks. The storage system at each unit will house 19% aqueous ammonia used in the pH control of the condensate and feed water. The aqueous ammonia will be housed in a 3150-gallon poly double walled tank, on a 16′ X 16′ cement slab with a 4″ curb surrounding the system. A truck unloading station will be constructed consisting of a fill connection bulkhead and 14′ x 16′ containment with catch basin. The fill piping from the fill bulkhead to the aqueous ammonia tank will be above ground.

Per the CEC Condition of certification, this compliance proposal is being submitted for approval due to the following condition decisions:

COMPLIANCE-13

The project owner must petition the Energy Commission pursuant to Title 20, California code of Regulations section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant of section 1769. Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.
A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

GEN-1

The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code,
California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the ***Transmission System Engineering*** *section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007*

CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above. (Decision pg. 4)

GEN-8

The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

STRUC-1

Prior to the start of any increment of construction of any major structure or component listed in ***Facility Design Table 2*** *of condition of certification* ***GEN-2****, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items:*
1. Major project structures;
2. Major foundations, equipment supports, and anchorage; and
3. Large field-fabricated tanks
Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

1.1 Overview

By this amendment Genesis Solar, LLC, petitions the Commission to consider the stated Condition of Certification to construct an aqueous ammonia storage system for pH control of the condensate and feed water at the Unit 1 and Unit 2 power blocks.

The aqueous ammonia storage tank is a double walled, self-contained, above ground tank with a 3150-gallon capacity. Tank will be fitted with a visual reverse float level indicator and installed with seismic restraints. The tank will rest on a 16'x16'x6"concrete pad with 4" curbs. A cover will be installed. Ground penetration will be 36 inches (See Drawings). The truck unloading station will include a fill connection bulkhead and truck containment. The bulkhead will be a Squibb Taylor S-Trongwall head model 1002 with 2" diameter sleeves. The truck containment will consist of a 14' x 16' system sloping to a 4' x 4' x 6'precast containment vault.

This Amendment contains all of the information that is required pursuant to the Siting Regulations (California Code of Regulations [CCR] Title 20, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769(a)(1) is contained in Sections 1.0 through 5.0 as summarized in Table 1 below.

TABLE 1

Informational Requirements for Post-Certification Amendments and Changes in accordance with Title 20 California Code of Regulations

Section 1769(a)(1) Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.	2.0
(B) A discussion of the necessity for the proposed changes	2.2
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time	2.2
(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted	2.2
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts	1.3
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;	1.3
(G) A discussion of how the modification affects the public	4.0
(H) A list of property owners potentially affected by the modification.	5.1
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	5.2

1.2 Ownership of Genesis Solar, LLC

Genesis Solar, LLC is a wholly owned subsidiary of NextEra Energy Resources.

1.3 Summary of Environmental Impacts

The Siting Regulations require that an analysis be conducted to address the potential impacts the proposed project change may have on the environment and proposed measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the impact of the proposed change on the facility's ability to comply with applicable laws, ordinances, regulations and standards ("LORS") (Title 20, CCR Section 1769 (a)(1)(F)).

Section 3.0 of this Amendment includes a discussion of the potential environmental impacts associated with the proposed additions and a discussion of the consistency of the change with LORS. Section 3.0 concludes that there would be no significant environmental impacts associated with implementing the construction of the aqueous ammonia storage system at Unit 1 and the aqueous ammonia storage system at Unit 2 specified in this Amendment and that the project would continue to comply with all applicable LORS.

The proposed changes to the site foot print will not adversely impact the environment. The proposed changes will not result in any significant physical change in the project or to the environment. The design of the plant will remain the same. Therefore, there is no possibility of any significant adverse environmental impacts resulting from the proposed changes to add the aqueous ammonia storage structures.

2.0 Description of Project Changes

This section includes a complete description of the proposed modification consistent with the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

2.1 Changes to Condition of Certification

By way of background, the Decision for the Genesis Solar facility describes in GEN-1 any alterations or additions will be presented to the CPM 30 days before commencement of work.

"Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work." (Decision, pg. 4)

The original Condition of Certification to the Decision will not be affected by the addition of the aqueous ammonia storage systems. The aqueous ammonia storage systems will be constructed to CBO specifications and inspected by the CBO as required. (Decision p.2)

Additionally, the implementation of the proposed aqueous ammonia storage systems will not adversely affect the Conditions of Certification listed to ensure that the Genesis Solar Energy Project will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in the Decision. (Decision, p. 3)

2.2 Necessity of Proposed Changes

The Siting Regulations require a discussion of the necessity for the proposed modification to GEN-1, GEN-8 and STRUC-1 whether the additional storage areas is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B), and (C)).

As described in Section 2.1 above, structural changes to the site does not change the decision as it is stated in GEN-1, GEN-8 and STRUC-1. The project owner did not know at the time of approval of the Decision that the storage areas would be necessary. Due to the extreme weather conditions in the Mojave Desert and the concerns regarding the equipment deterioration, Genesis Solar, LLC proposes to build and maintain the aqueous ammonia tank under a sun shielding awning and concrete slab hence keeping the integrity of the equipment.

The larger tanks are being installed due to higher than expected aqueous ammonia usage. A 330-gallon aqueous ammonia tank is currently installed at each unit. Current usage requires filling the 330-gallon aqueous ammonia tank by Genesis staff with 275 gallon totes every week. Large 3150-gallon tanks will eliminate the safety risk associated with a weekly chemical transfer by the Genesis staff. Deliveries will be performed in accordance with Genesis Bulk Chemical Unloading procedure.

This Amendment does not modify the decision requirements regarding the construction of the two (2) storage areas. The Amendment does not change the design or operation of the plant equipment. Accordingly, the proposed addition to the plant does not modify GEN-1, GEN-8 or STRUC-1 and will not result in any significant adverse environmental impact.

The proposed change has no possible potential impact on the following environmental disciplines: Biological Resources, Cultural Resources, Geology and Paleontology, Hazardous Materials Management, Land Use, Noise and Vibration, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Waste Management, and Worker Safety and Fire Protection.

3.1 Air Quality

The proposed changes that incorporate GEN-1, GEN-8 and STRUC-1 will not cause any change to air quality.

3.2 Impact to Public Health

The proposed changes that incorporate GEN-1, GEN-8 and STRUC-1 will have no effect on public health. Genesis Solar is well outside of the city of Blythe; approximately 3.5 miles north of I-10 and 6 miles from the rest area. There are no neighbors near the facility and no threat to outside public residences.

3.3 Consistency of Amendment with the Certification and LORS

The Siting Regulations require a discussion of the consistency of the proposed project revisions with the applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision (Title 14, CCR Section 1769 (a)(1)(D)). If the project is no longer consistent with the certification, the petition for project change must provide an explanation for why the modification should be permitted.

This Amendment is consistent with all applicable LORS and is not based on new information that changes or undermines any bases for the Decision. The findings and conclusions contained in the Decision for the project are still applicable to the project as modified.

4.0 Potential Effects on the Public

This section discusses the potential effects on the public that may result from the modification proposed in this request for approval, per the Siting Regulations (Title 20, CCR, Section 1769(a) (1) (G)).

The proposed changes will not affect the public. There are no residential homes, hospitals or schools within a 20-mile radius of the plant. The aqueous ammonia used in the water treatment process will remain at 19%, the current dosage used in the process.

5.0 List of Property Owners and Potential Effects on Property Owners

5.1 List of Property Owners

In accordance with the Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)), the project owner will provide the Compliance Project Manager for the project a list of all property owners whose property is located within 500 feet of the project.

There are no property owners within 500 feet of the project.

5.2 Potential Effects on Property Owners

This section addresses potential effects of the modification proposed in this Amendment on nearby property owners, the public, and parties in the application proceeding, per the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

There are no property owners within 500 feet of the project.

6.0 Approved Drawings and Pictures

All Approved Drawings and Pictures are attached

August, 2018

RISK MANAGEMENT PLAN

For

Genesis Solar, LLC
Aqueous Ammonia Injection System
11995 Wiley's Wells Road
Blythe, California 92225

Submitted To:

COUNTY OF RIVERSIDE DEPARTMENT OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS DIVISION
800 South Sanderson Avenue
Hemet, California 92545

Assistance Provided By:

Desert Engineers
75401 Painted Desert Drive
Indian Wells, Ca. 92210
(760) 568-9600
Info@DesertEngineers.Com

Project No. RS-1509

DOCUMENTATION RECORD

Quantity	Recipient
Genesis Solar, LLC	
1	**Eric Preher** **11995 Wylie Wells Road** **Blythe, CA 92225** **(760) 921-1402**
Florida Power & Light	
1	**Charlyn Mosley** **11995 Wylie Wells Road** **Blythe, CA 92225** **(760) 921-1401**
California Energy Commission	
1	**Eric Veerkamp** **CEC** **1516 9th Street, MS 2000** **Sacramento, CA95814**
County of Riverside Department of Environmental Health Hazardous Materials Division	
2	**Robert Lehman** **County of Riverside** **Department of Environmental Health** **Hazardous Materials Division** **800 South Sanderson Avenue** **Hemet, CA 92545** **(909) 766-2824**
Juno Environmental Services	
1	**Idayna Stokes** **700 Universe Blvd.** **Juno Beach, FL 33408**

RECORD OF REVISION

Revision #	Date	Date Entered	Name

REVISION PAGE SUMMARY FORM

Revision Number: **0.0**
Date:

Old Page Number(s) None	New Page Number(s)

INTRODUCTION

In response to the Federal Environmental Protection Agency (EPA) and the County of Riverside Department of Environmental Health, this Risk Management Plan (RMP) has been prepared for the Genesis Solar, LLC facility located in Blythe, California. This document has been prepared to satisfy the following regulation:

- **Federal EPA′s, Code of Federal Regulations, Title 40, Part 68, Accidental Release Prevention Requirements: Risk Management Programs Under Clean Air Act Section 112(r), Program 3 requirements.**

- **California Office of Emergency Services, California Code of Regulations, Title 19, Division 2, Chapter 4.5, California Accidental Release Prevention (CalARP) Program.**

This document contains the necessary information to satisfy the EPA Risk Management Program and the CalARP Program regulations for facilities handling regulated substances in excess of the listed threshold quantity. Specifically, this document consists of the Executive Summary as required by 40 CFR Part 68.155 (19 CCR ' 2745.3) and the Data Elements forms as required by 40 CFR Part 68.160 - 180 (10 CCR ' 2745.4 - .8). Finally, this document contains the certification page required by 40 CFR Part 68.185 (10 CCR ' 2745.9).

Currently, there is one regulated substance located at the Genesis Solar facility: aqueous ammonia (used for pH control of the boiler feed water). This *RMP* contains the information pertaining to the aqueous ammonia system that will be submitted to the County of Riverside Department of Environmental Health for review. The *Safety Management Plan (SMP)* is the system that supports the RMP and ensures that the facility is being operated safely.

Facility Description

This RMP addresses the plant's administrative and operational programs to prevent accidents and reduce potential risks associated with handling aqueous ammonia. Aqueous ammonia is used as a pH control of the boiler feed water that produces steam supplied to the steam turbines.

EXECUTIVE SUMMARY

This Executive Summary contains the facility's administrative and operational programs to prevent aqueous ammonia-related accidents and reduce potential risks. The regulated substance of concern and focus of this document is aqueous ammonia. The following topics are addressed in this Executive Summary:

- **Accidental Release Prevention and Emergency Response Policies**
- **Stationary Source and Regulated Substances Handled**
- **Hazard Assessment Summary**
- **Accidental Release Prevention Program and Chemical-Specific Prevention Steps**
- **Five Year Accident History**
- **Emergency Response Program**
- **RMP Prevention Programs**

ACCIDENTAL RELEASE PREVENTION AND EMERGENCY ACTION POLICIES

The Genesis Solar facility has an Emergency Action Plan (EAP) and a Hazardous Material Plan (HMP) in effect. These plans were designed to meet the following objectives:

1.) **To save lives.**
2.) **To minimize and avoid injuries.**
3.) **To protect the environment.**
4.) **To minimize property damage.**

Genesis Solar facility maintains a safety committee whose members are the designated emergency coordinators for the facility. The EAP and HMP provide the response organization and notification procedures, evacuation routes, ammonia health hazards, and mitigation procedures, which will be implemented to respond effectively to emergency situations that may arise at the facility. The EAP and HMP will be reviewed and updated to ensure compliance with the RMP regulations, as well as to incorporate facility changes.

Genesis Solar facility has coordinated emergency action efforts with the local fire department - Riverside County Fire Department. In the case of an ammonia-related emergency, it is the policy of Genesis Solar, LLC to evacuate the employees and to allow the fire department to respond to the emergency (potentially with the assistance of trained facility personnel). However, Genesis production technicians will respond to a small scale release by using approved air packs or respirators.

STATIONARY SOURCE AND REGULATED SUBSTANCE

Genesis Solar facility plans to begin operation of the aqueous ammonia system upon its completion. Current timeline estimates October 2018. Figure 1 shows the location of the facility and the surrounding area.

The aqueous ammonia system at the Genesis Solar facility consists primarily of one (1) poly urethane vessel and associated piping in Unit 1 and Unit 2. The aqueous equipment is located on a cement slab outside of the building under an awning. There are no planned releases of aqueous ammonia.

The maximum intended inventory of ammonia at the site is 3,150 gallons at each unit.

Figure 2 shows the facility site plan and Figure 3 shows the process flow diagram for the ammonia system.

FIGURE 1 Facility Location

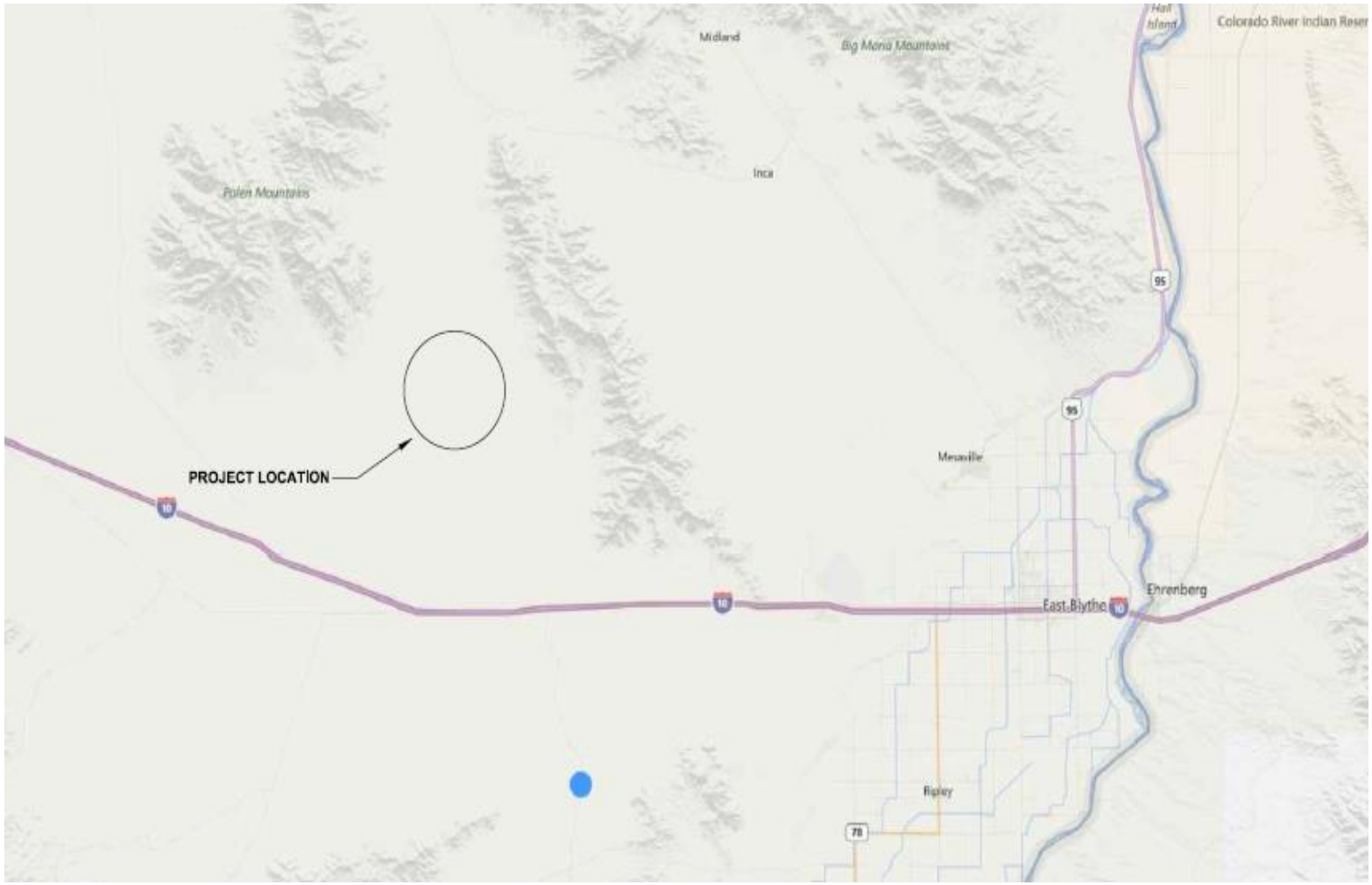


FIGURE 2 Facility Site Plan

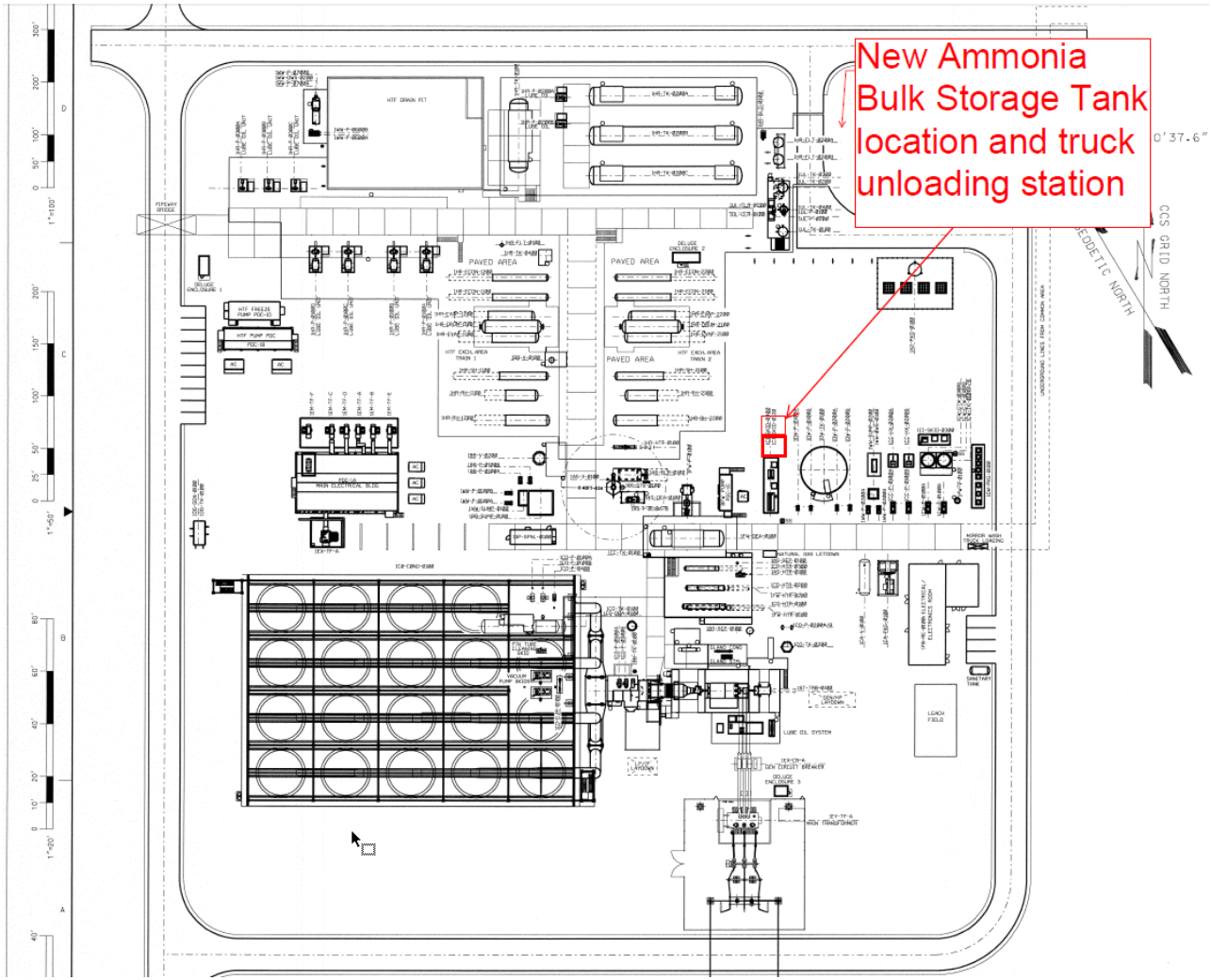
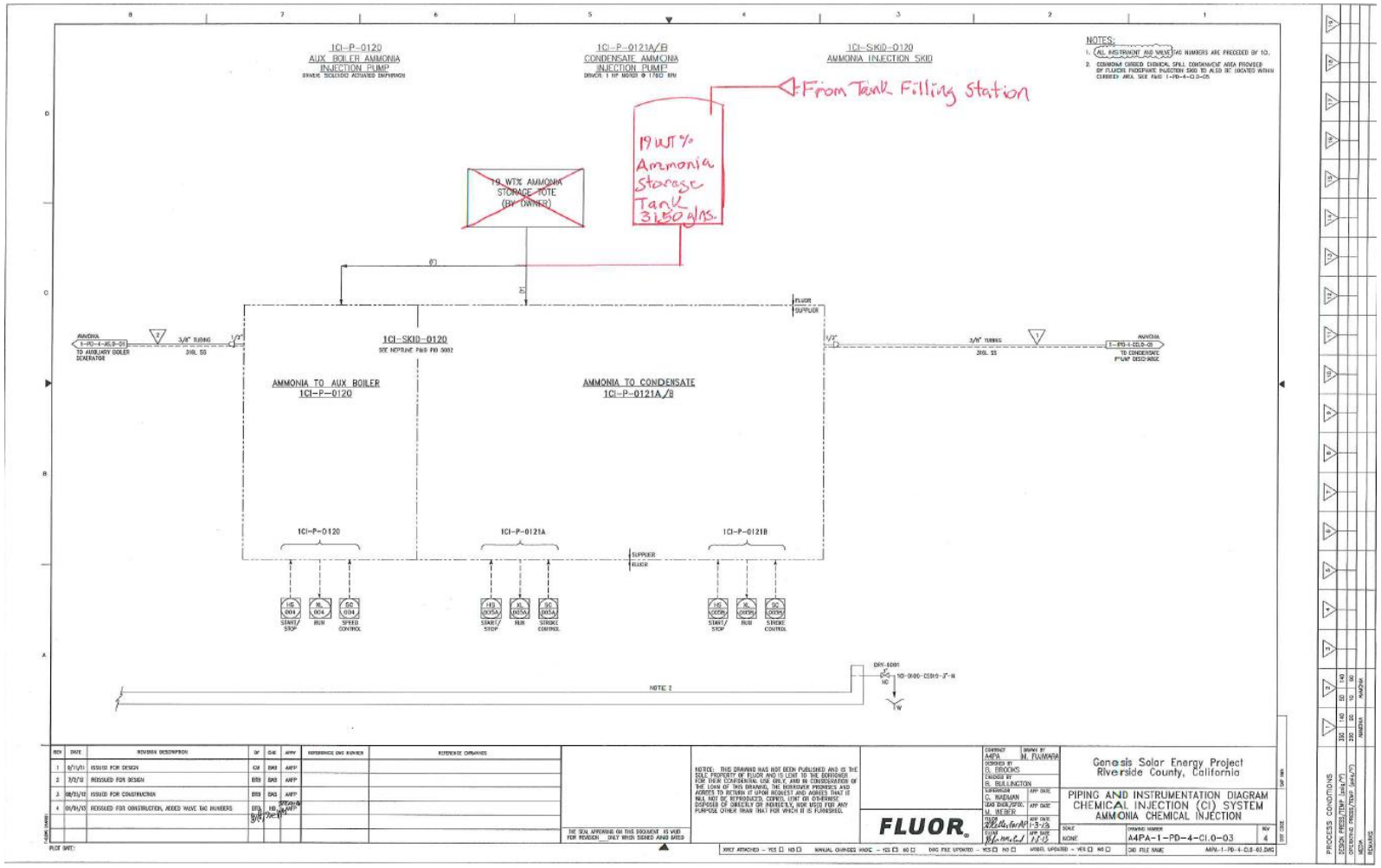


FIGURE 3 Process Flow Diagram



HAZARD ASSESSMENT SUMMARY

Result Summary

As part of this analysis, the Emergency Response Guidebook was used as a toxic endpoint to quantify off-site impacts for the facility. The ERG stipulates hazardous exposure within 150 feet of the spill during a worst case scenario. The closest point to public exposure is 3.5 miles from the Genesis Solar facility.

The Genesis Solar Facility is located 3.5 miles north of Interstate 10 and 20 miles west of the city of Blythe, CA.

The RMP requires that facilities also consider "Environmental Receptors" defined as; areas such as national or state parks, forests, or monuments; wildlife sanctuaries, preserves, refuges, or areas; and Federal wilderness areas. There are no Environmental Receptors within the hazardous exposure radius.

ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

The Genesis Solar facility ammonia system at each unit is comprised of a poly urethane vessel vented to atmosphere, level transmitter and local level indication. Much of the safety of the system is inherent in the policies and procedures that govern the operation of the system. For example, the facility operates in accordance with Cal/OSHA's Process Safety Management regulation and California Accidental Release Prevention (CalARP) Program.

In the event of a power failure, ammonia operations would automatically shut down. Once power is restored, the ammonia system can be restarted from the control room.

FIVE YEAR ACCIDENT HISTORY

There have been no accidental ammonia releases at the Genesis Solar, LLC facility within the last five years.

EMERGENCY RESPONSE PROGRAM

See Emergency Action Plan and Hazardous Material Plan.

RMP PREVENTION PROGRAMS

The *Genesis Solar Safety Management Plan (SMP)* is the system that supports the RMP and ensures that the facility is being operated safely. The SMP programs and associated documentation are maintained at the plant. The existing SMP includes all prevention programs currently in effect to address the ammonia system. (i.e. *Employee Training, Compliance Audits, Incident Investigation, Emergency Planning & Response*).

Certification Statement

The undersigned certifies that, to the best of my knowledge, information and belief, formed after reasonable inquiry, the information submitted is true, accurate, and complete.

Signature	**Date**
Eric Preher	**General Manager**
Print Name	**Print Title**

REGISTRATION
(RMP SUBMIT)

TABLE OF CONTENTS

SECTION PAGE

1.0 PURPOSE AND SCOPE

1.1.1. This procedure is to provide guidance for the bulk transfer of sodium hypochlorite, sulfuric acid, sodium hydroxide, and aqueous ammonia from delivery tanks into the bulk storage tanks located on-site.

2.0 REFERENCES AND COMMITMENTS

2.1 Performance References

2.1.1. N/A

2.2 Developmental References

2.2.1. N/A

2.3 Commitments

2.3.1. N/A

3.0 SAFETY AND ENVIRONMENTAL

3.1 Safety

3.1.1. Safety eyewash and shower function properly prior to unloading of chemicals

3.1.2. SDS shall be reviewed and all associated precautions are understood

3.2 Environmental

3.2.1. Spills or drips must be corrected or contained immediately

4.0 PREREQUISITES

4.1.1. **ENSURE** no clearances are active on associated equipment _____

4.1.2. **ENSURE** bulk chemical tank containment is dry _____

4.1.3. **IDENTIFY** max fill capacity of bulk chemical tank **AND ENSURE** sufficient room for unloading _____

4.1.4. **ENSURE** bulk chemical tank containment drain valve is shut _____

4.1.5. **REVIEW** emergency trip switch location on delivery tank truck and operation with driver _____

4.1.6. **FLUSH** safety eyewash and shower station for one minute _____

5.0 INSTRUCTIONS

5.1 Bulk chemical unloading pre-delivery

5.1.1. **CONDUCT** tailboard with driver **AND** **COMPLETE** IRAMF _____

5.1.2. **IDENTIFY** unit chemical will be unloaded **AND** **RECORD** in Attachment 1 _____

5.1.3. **VERIFY** chemical using Bill of Lading **AND** Chemical Inventory sheet to **ENSURE** chemical being delivered meets specifications **AND** record in Attachment 1 _____

5.1.4. **CHECK** chemical bulk tank level **AND** **RECORD** in Attachment 1 _____

5.1.5. **SHOW** driver the safety eyewash **AND** shower location _____

5.1.6. **IDENTIFY** chemical bulk tank that chemical will be **UNLOADED** into _____

5.1.7. **INSPECT** integrity of the following:

1. Transfer hose _____
2. Chemical tank fill line _____
3. Cam-locks fitting gaskets _____

5.1.8. **FLAG** delivery area with caution tape _____

5.1.9. **ENSURE** truck wheels chocked _____

5.1.10. **ENSURE** driver secures connections at bulk chemical tank fill and truck unloading connection **AND** **RECORD** in Attachment 1 _____

5.1.11. **ENSURE** catch pans are placed underneath hose connections _____

5.2 Bulk chemical unloading

5.2.1. **NOTIFY** control room operator unloading will commence _____

5.2.2. **DON** PPE _____

5.2.3. **VERIFY** line-up _____

5.2.4. **START** unloading _____

5.2.5. **MONITOR** unloading for leaks **AND** max fill capacity _____

IF leaks are detected
THEN stop and notify control room operator _____

5.2.6. **VERIFY** level indication is rising _____

5.2.7. **STOP** when max fill capacity is reached **OR** ordered amount unloaded _____

5.3 Bulk chemical unloading post delivery

5.3.1. **RECORD** bulk chemical tank final level in Attachment 1 _____

5.3.2. **ENSURE** driver clears transfer hose _____

5.3.3. **ENSURE** driver shuts chemical tank fill and truck unloading valves _____

5.3.4. **ENSURE** driver disconnects hose and drains any residual chemical _____

5.3.5. **NOTIFY** control room operator unloading is complete _____

5.3.6. **SIGN AND COMPLETE** driver's paperwork _____

5.3.7. **ENSURE** wheel chocks are removed _____

5.3.8. **COMPLETE** Attachment 1 _____

5.4 Clean up

5.4.1. **CLEAN** all tools used _____

5.4.2. **RETURN** all tools to their designated storage area _____

5.4.3. **DISPOSE** of generated waste _____

5.4.4. **SCAN** Attachment 1 into Maximo/Operator log _____

END of Instructions

6.0 REVISION HISTORY

Rev #	Revision Description (Current Revision only)	Revised By: Job Role
0	Initial Issue	Sr. PGD Operations Specialist

Attachment 1, CHEMICAL LOAD CHECKLIST

Unit (Circle one): COMMON UNIT 1 UNIT 2

Chemical (Circle one): AQUEOUS AMMONIA 19% SODIUM HYPOCHLORITE 12.5%

SODIUM HYDROXIDE 50% SULFURIC ACID 93% 66E

Date: _____ Time: _____

Tank Name:_____ Product Name:_____

Connected By (Driver) Name: _____ Initials: _____

Verified By (OPS) Name: _____ Initials: _____

Initial Tank Level:_____ Final Tank Level:_____

Chemical delivery Company's Name: _____

Attachment 2, JSA

SEQUENCE OF BASIC JOB STEPS OR ELEMENTS	POTENTIAL HAZARDS	PROBABILITY OF INCIDENT 1 TO 5	SEVERITY OF INCIDENT 1 TO 5	RISK INDEX	RECOMMENDED ACTION OR CONTROL
Performing work during summer or in temperatures exceeding 100° F	Heat exhaustion or heat stroke	3	4	12	-Stay hydrated -Take frequent breaks -2 person evolution -Reference :Heat and illness prevention plan
Unloading chemicals into storage tanks	Contact with chemical release when connecting and disconnecting transfer hoses	3	5	15	-Reference applicable SDS for chemical handling precautions -Use PPE: Per SDS -Peer check to verify status of equipment (depressurized, isolated)
Unloading chemicals into storage tanks	Exposure to chemical vapors – inhalation, eye irritation	3	5	15	-Reference applicable SDS for chemical handling precautions -Use PPE Per SDS -Position upstream of wind (use indications such as wind sock and DCS indications)

Attachment 2, JSA, Continued

Work area access	Slips/ Trips/ Falls Walking to work area across uneven surfaces	3	2	6	-Eyes on path -Safest path
Chemical unloading truck and equipment	Hearing damage	3	3	9	-Proper hearing protection

Rating	Likelihood	Severity
1	Almost no possibility (<0.1% chance)	Very minor injury, or near miss
2	Extremely Unlikely (<5% chance)	First aid case
3	Somewhat Likely (<25% chance)	Doctor case
4	Very Likely (25% to 50% chance)	Reportable injury
5	Extremely Likely (>50% chance)	Major injury with long term absence or fatality

Severity →	**1**	**2**	**3**	**4**	**5**
Likelihood ↓					
1	**1**	**2**	**3**	**4**	**5**
2	**2**	**4**	**6**	**8**	**10**
3	**3**	**6**	**9**	**12**	**15**
4	**4**	**8**	**12**	**16**	**20**
5	**5**	**10**	**15**	**20**	**25**

APPENDIX 6 ENVIRONMENTAL EVENT

The spill or release of any chemical /oil or Heat Transfer Fluid is a potentially serious event, and appropriate response actions must be taken to minimize health hazards to personnel, as well as potential impacts to the environment. It is the policy of the Genesis Solar, LLC that plant personnel will not respond to spills/releases, but will instead call for trained outside responders to perform this function. For the purpose of clarification to plant personnel, the term "respond" in this context refers to actions taken to perform cleanup operations of spilled substances, and in some cases may even take the meaning of actually stopping the source of a spill. Taking basic response actions to a spill such as setting up barricades, placing containment media and stopping spills in situations such as the Step 1 Example below should not be construed to be acting in the role of a "responder", as it is defined in OSHA HAZWOPER regulations.

The basic actions to be taken in response to a chemical or oil / HTF spill or release are the following:

1. If the spill or release is the direct result of an operational action performed on the system from which the release has originated, the person who performed the action should attempt to stop the release (if possible) if it can be stopped without incurring additional personal exposure to the substance.

   Example: A person opens the drain valve on a line that results in an unexpected release. If the person can immediately stop the release by closing the valve, this action should be taken if no additional exposure to the chemical will occur by doing so.

2. The person discovering a spill/release should immediately move to a location that is a safe distance from the affected area,

   a. If it is safe to do so under prevailing conditions, remain within observation distance.

   b. If safe conditions are in doubt, do not risk exposure – leave the area immediately.

3. The person discovering the spill should look for other personnel in the area, and warn them by any means available of the event that has occurred. The Site/Plant Leader should be notified immediately over the radio. Information provided should include all of the following that are known:

   a. What type of chemical has been spilled/released?

   b. The location(s) of the spill/release.

   c. If the source of the spill/release has been stopped

   d. If any injuries or chemical exposure has occurred to personnel.

   e. Boundaries describing the area of the spill.

   f. Whether or not the spill is contained.

   g. Quantity released (if it can be estimated).

   h. Environmental Impacts (water bodies, streams, ground, roadways)

4. Based upon the report from the person discovering the spill, the Site/Plant Leader shall evaluate whether the circumstances pose a threat to the surrounding community or the environment.

a. If a threat is imposed to the community or environment, 911 should be notified immediately. The Site/Plant Leader shall also contact at least one of the following specialized emergency responders:

Organization	Expected Response Time	Contact Number
MP Environmental Services	12 hrs	602-717-2580
CVC	14 hrs	661-391-8310

5. The Plant Environmental Leader shall make a determination as to whether the spill/release is of a quantity that must be reported to agencies, and if so, which agencies to notify. To perform this step, the Site/Plant Leader shall use the Genesis Solar, LLC Response Plan/Spill Prevention Control and Countermeasure Plan (FRP/SPCC). The Plant Environmental Leader shall ensure that all required notifications are made.

6. The Site/Plant Leader or the Plant Environmental Leader shall make notification to the FPDC as possible so the FPDC can issue a “deviation” to a pre-determined distribution list. If the Environmental Event is significant where outside organizations may request information the distribution may be expanded to include employees from Corporate Security, Media Relations, and the Corporate Emergency Preparedness Group. The PGD Emergency Response Coordinator will be made aware of the situation via the FPDC notification, or by the Operating Fleet VP, or by a direct call from the site depending on the magnitude of the incident.

7. If applicable, the Site/Plant Leader or the Plant Environmental Leader shall closely coordinate with the PGD Emergency Response Coordinator, during pre and post event activities.

8. While remaining at a safe distance from the spill/release, the person discovering the spill should locate and place temporary containment around the outer boundaries of the spill, and place absorbent mats over any plant drains that are near the location of the spill.

Note: This should be performed only if it is safe to do so without risking chemical exposure.

9. The person discovering the spill should attempt to barricade, restrict access or otherwise mark off safe boundaries around the spill to prevent others from inadvertently approaching the spill area.

Note: This should be performed only if it is safe to do so without risking chemical exposure.

10. The person discovering the spill should remain at a safe distance from the source of the spill/release until additional assistance or instructions are received.

11. Unless the person discovering the spill has reported unsafe conditions for approach of the area, the Plant Environmental Leader shall immediately proceed to the spill area to evaluate the severity of the incident.

Note: If any personnel are discovered to be unconscious or otherwise incapacitated upon approach to the spill scene, all personnel must immediately move away to a safe distance from the unknown threat.

12. The Plant Leader shall evaluate the adequacy of containment, barricades, and any other efforts that have been taken to prevent the spill from migrating to any additional areas or systems, and direct additional actions to be performed (unless it is deemed that any additional actions are unsafe to perform).

    a. The adequacy or need for PPE should also be assessed. Upon completing this assessment, the Site/Plant Leader shall notify/inform the Genesis Solar, LLC Emergency Coordinator of the status of the emergency.

13. Once the Plant Leader (or Emergency Coordinator, as appropriate) has determined that adequate containment and barricading of the spill area exists, he/she shall ensure that an adequately trained observer remains positioned a safe distance from the scene to observe the status of the spill and arrange for proper cleanup/mitigation actions.

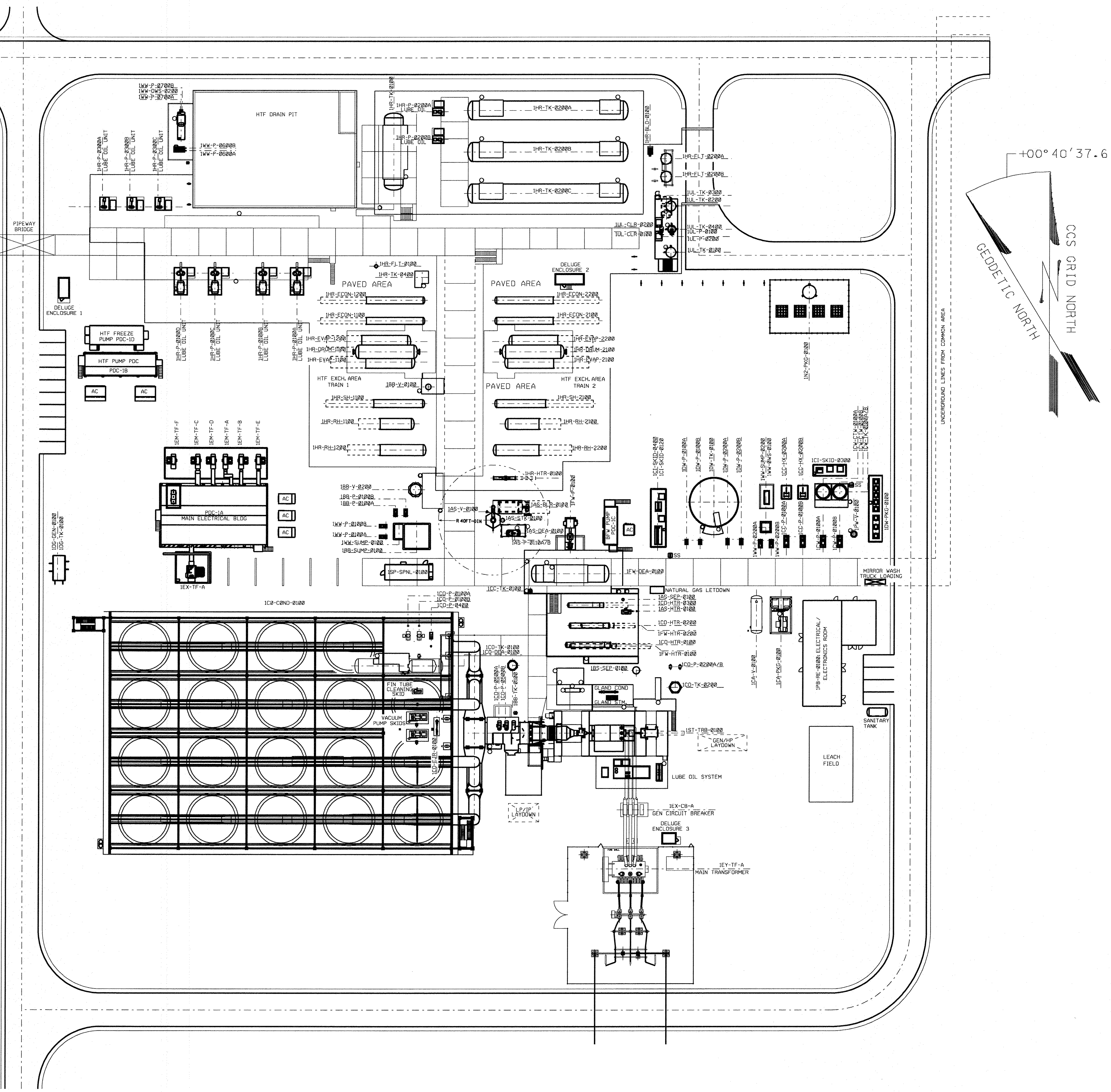
APPENDIX A BELOW REPRESENTS THE LIST OF CHEMICALS MAINTAINED AT THE GENESIS SOLAR, LLC.

Appendix A Chemical List

Material	CAS No.	Application	Hazard Characteristics	Maximum Quantity On Site	CERCLA Sara RQ	RQ in Gallons of Product
Acetylene	74-86-2	Welding Gas	Health: moderate toxicity Physical: toxic	990 cubic feet	NR	-
Argon	7440-37-1	Welding Gas	Health: low toxicity Physical: non-flammable gas	1980 cubic feet	NR	-
Carbon Dioxide	124-38-9	Welding Gas	Health: moderate toxicity Physical: non-flammable gas	556 lbs	NR	-
Diesel Fuel	68476-34-6	Equipment refueling and emergency diesel fire pump	Health: low toxicity Physical: combustible city	2800 gallons	NR	-
Nitrogen	7727-37-9	HTF System	Health: low toxicity	2640 cubic feet	NR	-
Oxygen	7782-44-7	Welding Gas	Health: low toxicity Physical: oxidizer	1320 cubic feet	NR	-
Dow Thermal	101-84-8	Heat Transfer Fluid (HTF) throughout solar array	Health: moderate toxicity Physical: irritant: combustible liquid (class III-B)	1800000 gallons	100 pounds	42 gallons
Sodium Hypochlorite	7681-52-9	Biological control	Health: low toxicity Physical: N/A	1320 gallons	100	82 gallons

Sodium Bisulfite (30%)	**7631-90-5**	**Bleach reduction for RO**	**Health: High toxicity Physical: Corrosive**	**1320 gallons**	**5000 gallons**	**1617 gallons**
Antiscalant	**37971-36-1**	**Antiscalant RO**	**Health: low toxicity Physical: N/A**	**660 gallons**	**NR**	**-**
Caustic (50%)	**1310-73-2**	**pH Adjustment**	**Health: Medium toxicity Physical: Corrosive and irritating to the eyes and skin**	**660 gallons**	**1000 pounds**	**157 gallons**
Sulfuric Acid (93%)	**7664-93-9**	**pH Adjustment**	**Health: Medium toxicity Physical: Corrosive and irritating to the eyes and skin**	**2749 pounds**	**1000 pounds**	**70 gallons**
Coagulant	**10028-22-5**	**Solids reduction, lamella reducer**	**Health: Medium toxicity Physical: Corrosive and irritating to the eyes and skin**	**660 gallons**	**1000 pounds**	**253 gallons**
Polymer	**64742-47-8**	**Solids reduction, lamella reducer**	**Health: Medium toxicity Physical: Irritating to the eyes and skin**	**660 gallons**	**NR**	**-**
Ammonia Hydroxide (19.5%)	**1336-21-6**	**pH Adjustment**	**Health: High toxicity Physical: Corrosive and irritating to the eyes and skin can cause**	**660 gallons**	**1000 pounds**	**647 gallons**

			serious eye damage. Harmful if inhaled			
Phosphates	**7601-54-9**	**phosphate treatment for steam generators**	**Health: Medium toxicity Physical: Irritating to the eyes and skin**	**660**	**5000 pounds**	**7275 gallons**
Sodium Bromide	**7647-15-6**	**Biological control**	**Health: High toxicity Physical: Corrosive and irritating to the eyes and skin can cause serious eye damage. Harmful if inhaled**	**660 gallons**	**1000 pounds**	**900 gallons**
Unleaded Gasoline	**86290-81-5**	**Equipment refueling and emergency diesel fire pump**	**Health: low toxicity Physical: combustible city**	**2000 gallons**	**NR**	



EQUIPMENT LIST

ITEM NO.	AREA	EQUIPMENT DESCRIPTION	QTY.
AIR COOLERS			
1CO-COND-0100	1	AIR COOLED CONDENSER (ACC)	1
1CW-CTW-0100A/B	1	COOLING TOWER	2
1UL-CLR-0100	1	ULLAGE COOLER 1	1
1UL-CLR-0200	1	ULLAGE COOLER 2	1
BOILERS			
1AS-BLR-0100	1	AUXILIARY BOILER	1
DEAERATORS			
1AS-DEA-0100	1	AUXILIARY BOILER DEAERATOR	1
1CO-DEA-0100	1	CONDENSATE TANK DEAERATOR	1
1FW-DEA-0100	1	DEAERATOR	1
EXCHANGERS			
1AS-HTR-0100	1	AUX. STEAM ELECTRIC SUPERHEATER	1
1CC-HX-0200A/B	1	CCW EXCHANGERS	2
1CO-HTR-0100	1	LP FEEDWATER HEATER 1	1
1CO-HTR-0200	1	LP FEEDWATER HEATER 2	1
1CO-HTR-0300	1	LP FEEDWATER HEATER 3	1
1CO-HX-0100A/B	1	VAC PUMP COOLERS (NOT SHN.)	2
1FW-HTR-0100	1	HP FEEDWATER HEATER 1	1
1FW-HTR-0200	1	HP FEEDWATER HEATER 2	1
1HR-ECON-1100/2100	1	ECONOMIZER A	2
1HR-ECON-1200/2200	1	ECONOMIZER B	2
1HR-EVAP-1100/1200	1	EVAPORATORS	2
1HR-EVAP-2100/2200	1	EVAPORATORS	2
1HR-HTR-0100	1	HTF STEAM HEATER	1
1HR-RH-1100/2100	1	REHEATER A	2
1HR-RH-1200/2200	1	REHEATER B	2
1HR-SH-1100/2100	1	HP SUPERHEATER	2
PUMPS			
1AS-P-0110A/B	1	AUX. BOILER FEED PUMPS	2
1BB-P-0100A/B	1	BLOWDOWN SUMP PUMPS	2
1CA-CMP-0100A/B	1	AIR COMPRESSORS (NOT SHN.)	2
1CC-P-0100A/B	1	CLOSED COOLING WATER PUMPS	2
1CO-CMP-0100A/B	1	VACUUM PUMPS (NOT SHN.)	2
1CO-P-0100A/B	1	CONDENSATE PUMPS	2
1CO-P-0200A/B	1	STEAM DUCT DRAIN PUMPS	2
1CO-P-0400	1	HOOD SPRAY PUMP	1
1CO-P-0500A/B	1	STEAM DUCT BOOT DRAIN PUMPS	2
1CO-P-0600	1	CLEANING WATER PUMP (NOT SHN.)	1
1CO-P-0700A/B	1	VAC RECIRCULATION PUMPS (NOT SHN.)	2
1CW-P-0100A/B	1	CIRCULATING WATER PUMPS	2
1DW-P-0100A/B	1	DEMIN WATER PUMPS	2
1DW-P-0200A/B	1	DEMIN WATER START-UP PUMPS	2
1FW-P-0100	1	BOILER FEED WATER PUMP	1
1HR-P-0100A-D	1	HTF MAIN PUMPS	4
1HR-P-0200A/B	1	OVERFLOW RETURN PUMPS	2
1HR-P-0300A-C	1	HTF FREEZE PROTECTION PUMPS	3
1UL-P-0100	1	ULLAGE DISCHARGE PUMP	1
1UL-P-0200	1	ULLAGE CIRCULATION PUMP	1
1WW-P-0100A/B	1	OILY WATER SUMP PUMPS	2
1WW-P-0200A/B	1	CLEAN WATER SUMP PUMPS	2
1WW-P-0600A/B	1	HTF SEPARATOR INFLUENT PUMPS	2
1WW-P-0700A/B	1	HTF SEPERATOR EFFLUENT PUMPS	2
SILENCERS			
1BB-SIL-0100	1	INTER. BD DRUM SILENCER (NOT SHN.)	1
1BB-SIL-0300	1	ATMOS. DRAIN TK SILENCER (NOT SHN.)	1
1BS-SIL-1100/2100	1	HP PSV SILENCER (NOT SHN.)	2
1BS-SIL-1200/2200	1	HP MAINT. SILENCER (NOT SHN.)	2
1BS-SIL-1300/2300	1	HRH PSV SILENCER (NOT SHN.)	2
1BS-SIL-1400/2400	1	HRH MAINT. SILENCER (NOT SHN.)	2
1CA-FLT-0100A/B	1	PRE-FILTER/SILENCER (NOT SHN.)	2
1CO-SIL-0100	1	EJECTOR SILENCER (NOT SHN.)	1
1FW-SIL-1100/2100	1	HP STEAM DRUM SILENCER (NOT SHN.)	2
1ST-SIL-0100A/B	1	HP AUXILIARY SILENCER (NOT SHN.)	2
1ST-SIL-0200A/B	1	HRH AUX. SILENCER (NOT SHN.)	2
1ST-SIL-0300	1	GLAND STEAM SILENCER (NOT SHN.)	1
1ST-SIL-0400	1	GLAND STM. PSV SILENCER (NOT SHN.)	1
1ST-SIL-0500	1	HP STAND PIPE SILENCER (NOT SHN.)	1

EQUIPMENT LIST

ITEM NO.	AREA	EQUIPMENT DESCRIPTION	QTY.
SKIDS			
1CA-PKG-0100	1	PLANT/INSTRUMENT AIR PACKAGE	1
1CI-SKID-0120	1	AMMONIA INJECTION SKID	1
1CI-SKID-0300	1	SOD. HYPOCHLORITE INJECT SKID	1
1CI-SKID-0400	1	PHOSPHATE INJECTION SKID	1
1DW-PKG-0100	1	DEMINERALIZER PACKAGE	1
1HR-SKID-0100	1	NITROGEN SKID	1
STACK			
1AS-STK-0100	1	AUX. BOILER STACK	1
FILTERS, STRAINERS & MISC.			
1CA-DRY-0100A/B	1	DUAL TOWER DRYER (NOT SHN.)	2
1CA-FLT-0200A/B	1	AFTER FILTERS FOR DRYERS (NOT SHN.)	2
1CO-EJR-0100	1	HOGGING EJECTOR	1
1CO-EJR-0200	1	DEAERATOR EJECTOR (NOT SHOWN)	1
1DW-FLT-0100	1	DEMIN WATER RESIN TRAP (NOT SHN.)	1
1HR-FLT-0100	1	HTF SIDESTREAM FILTER	1
1HR-FLT-0200A/B	1	HTF SYSTEM VENT CARBON FILTERS	2
SUMPS			
1BB-SUMP-0100	1	BLOWDOWN SUMP	1
1WW-SUMP-0100	1	OILY WATER SUMP	1
1WW-SUMP-0200	1	CLEAN WATER SUMP	1
N/A	1	HTF DRAIN PIT	1
GENERATOR			
1DG-GEN-0100	1	DIESEL STANDBY GENERATOR	1
1ST-TRB-0100	1	STEAM TURBINE GENERATOR	1
SAMPLE PANELS			
1AS-HX-0122	1	AUX. BOILR SMPLE COOLER (NOT SHN.)	1
1SP-SPNL-0100	1	SAMPLE PANEL	1
TANKS & VESSELS			
1AS-SEP-0100	1	SEAL STEAM SEPARATOR	1
1AS-V-0100	1	AUX. BOILER BLOWDOWN DRUM	1
1BB-TK-0100	1	ATMOSPHERIC DRAINS TANK	1
1BB-V-0100	1	CONTINUOUS BLOWDOWN DRUM	1
1BB-V-0200	1	INTERMITTENT BLOWDOWN DRUM	1
1BS-SEP-0100	1	MOISTURE SEPARATOR	1
1CA-V-0100	1	DRY AIR RECEIVER	1
1CA-V-0200	1	WET AIR RECEIVER (NOT SHN.)	1
1CC-TK-0100	1	CLOSED COOLING WATER EXP. TANK	1
1CO-TK-0100	1	CONDENSATE TANK	1
1CO-TK-0200	1	STEAM DUCT DRAINS TANK	1
1CW-TK-0100A/B	1	COOLING TOWER TANKS	2
1DG-TK-0100	1	DIESEL TANK	1
1DW-TK-0100	1	DEMINERALIZED WATER TANK	1
1HR-DRUM-1100/2100	1	STEAM DRUM	2
1HR-TK-0100	1	HTF EXPANSION VESSEL	1
1HR-TK-0200A-C	1	HTF OVERFLOW VESSELS	3
1HR-TK-0400	1	SGS HTF PSV'S DISCH. VESSEL	1
1PW-V-0100	1	POTABLE WATER PRESSURE TANK	1
1UL-TK-0100	1	ULLAGE VESSEL #1	1
1UL-TK-0200	1	ULLAGE VESSEL #2	1
1UL-TK-0300	1	ULLAGE DRAIN VESSEL	1
1UL-TK-0400	1	RECLAMATION FLASH VESSEL	1
1WW-OWS-0100	1	OIL/WATER SEPARATOR	1
1WW-OWS-0200	1	HTF/OIL/WATER SEPARATOR	1

H.P.F.S.
EL. 383′-7″

0 20 40 60 80 100 120
REDUCED PRINT SCALE
1" = 40' - 0"

REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
A	02-15-11	ISSUED FOR INTERNAL REVIEW	RK	HB	RM	A4PA-0-PP-5-01	OVERALL SITE PLOT PLAN
1	03-31-11	ISSUED FOR DESIGN	RK	HB	RM		
2	10-17-11	UPDATED PLOT PLAN	RK	HB	RM		
3	10-31-11	UPDATED PLOT PLAN	RK	HB	RM		
4	05-01-12	ISSUED FOR CONSTRUCTION	AL	HB	RM		
5	02-19-13	REISSUED FOR CONSTRUCTION	HB	HB	RM		

PLOT DATE:

THE SEAL APPEARING ON THIS DOCUMENT IS VALID FOR REVISION ONLY WHEN SIGNED AND DATED

CBD

RESPONSIBLE ENGINEER

FLUOR

CONTRACT	A4PA	DRAWING BY	A. LIVINGSTON
DESIGNED BY	R.KYLE		
CHECKED BY	H. BORGE		
SUPERVISOR	R. MANNING	APP DATE	04-13-2012
LEAD ENGR/SPEC.	ART PINTO	APP DATE	04-13-2012
FLUOR		APP DATE	
CLIENT	M. McCORD	APP DATE	04-13-2012

Genesis Solar Energy Project
Riverside County, California

PLOT PLAN UNIT 1
POWER BLOCK

SCALE 1"=40'

DRAWING NUMBER A4PA -1 -PP -5 -01

REV 5

CAD FILE NAME A4PA1PP501.DWG

GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT

ABBREVIATIONS

AGG.	AGGREGATE
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
B.C.	BEGINNING OF CURVE RADIUS
BLDG.	BUILDING
C.H.	CHORD
C.B.	CATCH BASIN
C.M.C.	CEMENT MORTAR COATED
C.M.L.	CEMENT MORTAR LINED
℄	CENTERLINE
DIA.	DIAMETER
D/W	DRIVEWAY
Δ	DELTA
EG	EXISTING GRADE
EP	EDGE OF PAVEMENT
ER	EDGE OF ROAD
EL.	ELEVATION
EC.	END OF CURVE RADIUS
F.F.	FINISH FLOOR ELEVATION
℄ OR FL	FLOWLINE
F.S.	FINISH SURFACE
GE	GUTTER EDGE
L.	LENGTH
LIP.	LIP OF CURB IN DRIVEWAYS
M.H.	MANHOLE
MAX.	MAXIMUM
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OHE	OVERHEAD ELECTRICAL LINE
PAD	TOP OF P.C.C. SLAB
PB1	POWER BLOCK 1
PB2	POWER BLOCK 2
%	PERCENT
P.I.G.	POINT OF INTERSECTING GRADES
P.I.T.	POINT OF INTERSECTING TANGENTS
P.V.C.	POLY VINYL CHLORIDE
P.C.C.	PORTLAND CONCRETE CEMENT
P.P.	POWER POLE
R.	RADIUS
R.C.P.	REINFORCED CONCRETE
ROW	RIGHT–OF–WAY
S	SLOPE
SW	SIDEWALK
T.	TANGENT
TB	TOP OF BERM
T.C.	TOP OF CURB
TMH	TOP OF MANHOLE
T.P.	TOP OF PAVEMENT

GENERAL NOTES

PERFORM CONSTRUCTION AND WORKMANSHIP IN COMPLIANCE WITH THE DRAWINGS, SPECIFICATIONS AND THE CALIFORNIA BUILDING CODE AND INTERNATIONAL BUILDING CODE, LATEST EDITIONS.

THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.

ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OTHERWISE. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THESE GENERAL NOTES AND TYPICAL DETAILS.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.

ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE PLANS AND/OR CODE REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY OF THE WORK INVOLVED. APPROVAL BY GOVERNING AGENCY DOES NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS, SPECIFICATIONS OR CODE REQUIREMENTS.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED WORK PRODUCT, UNLESS OTHERWISE REQUIRED BY CODE REQUIREMENTS. THE CONTRACT DRAWINGS DO NOT REPRESENT THE MEANS AND METHODS OF CONSTRUCTION. CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ADEQUATE ERECTION SHORING, BRACING AND GUYS THAT COMPLY WITH LOCAL STATE, OSHA AND NATIONAL SAFETY STANDARDS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES COMPLYING WITH ALL LOCAL STATES OSHA, AND NATIONAL SAFETY STANDARDS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUB-CONTRACTORS.

THE CONTRACTOR SHALL INVESTIGATE THE SITE FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS FOUNDATIONS, CESSPOOLS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED.

NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND CONSENT OF THE ENGINEER WHOSE SIGNATURE APPEARS HEREON.

PROJECT SITE DRIVING PRIVILEGE NOTICE:

SCOPE OF SITE DRIVING PRIVILEGE IS APPLICABLE TO ALL PERSONS ONSITE REGARDLESS OF EMPLOYMENT, STATURE, VISITING OR DELIVERING STATUS.

DRIVING ON THE PROJECT SITE IS A PRIVILEGE AND AS SUCH MUST BE MAINTAINED IN GOOD STATUS.

PERSONS ONSITE REPORTED BY ANY MEMBER OF THE MANAGEMENT TEAM OR GOVERNMENT AGENCY SHOWING DISREGARD FOR OTHERS AND/OR OUT OF COMPLIANCE WITH THE SITE DRIVING RULES MAY HAVE THEIR DRIVING PRIVILEGE REVOKED, NOT ALLOWING THAT INDIVIDUAL TO DRIVE ON SITE FOR THE DURATION OF THE PROJECT.

GOVERNMENT AGENCIES MAY ALSO PERFORM RANDOM UNANNOUNCED SPEED CHECKS.

SOME OF THE BEHAVIORS THAT WILL JUSTIFY REVOCATION OF DRIVING PRIVILEGES ARE LISTED BELOW:

- DRIVING RECKLESS ON SITE OR ON THE SITE ACCESS ROADWAY
- PASSING OR OVERTAKING OTHER VEHICLES EN ROUTE ON SITE ON THE ACCESS ROAD
- NOT OBEYING POSTED SPEED LIMITS ONSITE OR ON THE ACCESS ROAD
- GENERATION OF EXCESS FUGITIVE DUST
- SPEEDING PAST WORKERS ON SITE
- CAUSING AN ACCIDENT OR NEAR MISS WHILE DRIVING ON SITE
- CAUSING DAMAGE TO EQUIPMENT OR PROPERTY
- BYPASSING OR RUNNING SECURITY GATES
- HARASSMENT OR MORTALLY WOUNDING WILDLIFE
- TICKETED BY A GOVERNMENT AGENCY (MAY BE A PERSONAL FINE UP TO $1,000.00)

SAFETY ON SITE IS THE RESPONSIBILITY OF ALL AND MUST BE CONSIDERED THE HIGHEST VALUE.

SAFETY RULES FOR PERSONNEL WORKING ON THE PROJECT SITE

1. ALL PERSONS ON SITE HAVE THE RIGHT AND RESPONSIBILITY TO CORRECT UNSAFE CONDITIONS BEFORE CONTINUING WORK. REPORT ANY UNSAFE CONDITION OR UNSAFE AT TO YOUR SUPERVISOR.
2. HARD HAT (Z-87.1), SAFETY GLASSES (ANSI Z-87.1) STEEL TOE BOOTS (ASTM 2413-05) AND HIGH VISIBILITY VEST WITH REFLECTIVE STRIPE ARE MANDATORY AND MUST BE WORN AT ALL TIMES WHILE ON SITE, WITH THE FOLLOWING EXCEPTIONS:
   a. OFFICE ENVIRONMENTS.
   b. WHILE ENTERING AND LEAVING THE PROJECT SITE FOR YOUR WORK SHIFT.
3. APPROPRIATE WORK CLOTHING CONSISTING OF LONG PANTS AND SHIRT WITH AT LEAST 4" SLEEVES SHALL BE WORN BY ALL PERSONS ENGAGED IN WORK ON THE PROJECT.
4. OTHER PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHEN THE JOB TASK OR CONDITIONS REQUIRE. EXAMPLES INCLUDE HEARING PROTECTION, GLOVES, RESPIRATORY PROTECTION AND PERSONAL FALL PROTECTION EQUIPMENT.
5. ALL SAFETY, FALL PROTECTION, LIFTING/RIGGING EQUIPMENT AND POWER TOOLS MUST BE INSPECTED REGULARLY BY A COMPETENT PERSON. DEFECTIVE EQUIPMENT SHALL NOT BE USED AND SHALL BE REPLACED IMMEDIATELY.
6. FOLLOW POSTED SPEED LIMITS.
7. DO NOT TALK OR TEXT ON A PHONE WHILE OPERATING EQUIPMENT OR MACHINERY.
8. SEAT BELTS MUST BE WORN AT ALL TIMES WHEN TRAVELING IN VEHICLES AND ON EQUIPMENT.
9. BE SURE TO UTILIZE A SPOTTER WHEN NECESSARY. ANYTIME A TRAILER IS BEING BACKED, WHILE BACKING LARGE TRUCKS, IN TIGHT CONDITIONS. IF THERE IS A BLIND SPOT, ANYTIME YOU ARE NOT 100% POSITIVE IT IS COMPLETELY SAFE TO BACK UP OR MOVE ANY EQUIPMENT OR VEHICLE IN CONGESTED AREAS OR AROUND OBSTACLES USE A SPOTTER.
10. RIDING IN THE BACK OF PICKUP TRUCKS FOR TRANSPORTATION PURPOSES IS EXPRESSLY PROHIBITED.
11. SMOKING SHALL BE IN DESIGNATED AREAS ONLY. CIGARETTE BUTTS MUST BE PLACED IN AN APPROPRIATE CONTAINER AND NOT ON SITE.
12. POSSESSION AND/OR USE OF ILLEGAL DRUGS, DRUG PARAPHERNALIA, ALCOHOL, EXPLOSIVES AND FIREARMS (INCLUDING AMMUNITION) ARE EXPRESSLY PROHIBITED.
13. ALL EMPLOYEES MUST BE PROPERLY TRAINED BEFORE OPERATING MACHINERY OR EQUIPMENT INCLUDING ATV (MULES, GATORS).
14. ALL ACCIDENTS, INJURIES AND NEAR MISSES MUST BE REPORTED TO THE SITE SAFETY REPRESENTATIVE OR SUPERVISOR ONSITE.
15. ALL PERSONNEL ONSITE MUST ATTEND WEEKLY SITE SAFETY MEETINGS AND COMPLETE A THOROUGH JSA BEFORE THE START OF ANY WORK.
16. ALL PERSONNEL MUST KNOW THE CORRECT EMERGENCY PROCEDURE TO BE FOLLOWED IN THE EVENT OF AN ACCIDENT OR EMERGENCY.
17. ALL PERSONNEL MUST FAMILIARIZE THEMSELVES WITH THE LOCATION OF FIRE EXTINGUISHERS IN THE SURROUNDING WORK AREAS.
18. HORSEPLAY, FIGHTING OR CARLESS ACTS WILL NOT BE TOLERATED ON THE PROJECT SITE. BEHAVIOR THAT COULD BE PERCEIVED AS THREATENING OR INDICATING THE POSSIBILITY OF VIOLENCE IS PROHIBITED AND MAY BE CAUSE FOR REMOVAL FROM SITE.
19. BE SURE TO FOLLOW ALL APPLICABLE SITE PROCEDURES; LO/TO, PERMIT TO WORK, PERMIT TO DIG, GREEN TAG POLICIES, BARRICADES POLICIES, ETC.

ALL EMPLOYEES, VENDORS AND SUBCONTRACTORS WORKING OR LOCATED ON THE PROJECT ARE BOUND BY THESE SITE SAFETY RULES AS A CONDITION OF BEING ONSITE.

NOTES FOR INSTALLATION OF ABOVE GROUND AMMONIA STORAGE TANKS

1. THE CONTRACTOR SHALL CONSTRUCT THE AMMONIA SYSTEM IMPROVEMENT PROJECT IN CONFORMANCE WITH THE CALIFORNIA BUILDING STANDARDS CODE (CBSC); ALSO KNOWN AS TITLE 24, CALIFORNIA CODE OF REGULATIONS WHICH ENCOMPASSES THE CALIFORNIA BUILDING CODE (CBC), CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, CALIFORNIA ELECTRICAL CODE, CALIFORNIA MECHANICAL CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA ENERGY CODE, CALIFORNIA FIRE CODE, CALIFORNIA CODE FOR BUILDING CONSERVATION, CALIFORNIA REFERENCE STANDARDS CODE, AND ALL OTHER APPLICABLE ENGINEERING LORS IN EFFECT AT THE TIME INITIAL DESIGN PLANS ARE SUBMITTED TO THE CBO FOR REVIEW AND APPROVAL (THE CBSC IN EFFECT IS THE EDITION THAT HAS BEEN ADOPTED BY THE CALIFORNIA BUILDING STANDARDS COMMISSION AND PUBLISHED AT LEAST 180 DAYS PREVIOUSLY). THE CONTRACTOR SHALL COMPLY WITH THE CALIFORNIA CODE OF REGULATIONS (CCR) INCLUDING TITLE 19 AND TITLE 22 AND IN PARTICULAR TITLE 19, SECTION 2770.2 AND TITLE 22, SECTION 66264.193. THE CONTRACTOR SHALL INCLUDE THE COSTS OF ALL REQUIRED MATERIAL, FACILITIES AND EQUIPMENT FOR THE AQUEOUS AMMONIA STORAGE AND HANDLING, AS REQUIRED BY THE CALIFORNIA CODE OF REGULATIONS, IN THE PROPOSAL/CONTRACT BETWEEN THE CONTRACTOR AND OWNER.
2. ELECTRICAL EQUIPMENT AND WIRING FOR USE IN AMMONIA INSTALLATIONS SHALL BE GENERAL PURPOSE OR WEATHER RESISTANT AS APPROPRIATE. ELECTRICAL SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE ELECTRICAL SAFETY ORDERS.
3. WHERE VEHICLE IMPACT IS POSSIBLE OR LIKELY, AMMONIA STORAGE TANKS SHALL BE PROTECTED AGAINST VEHICLE DAMAGE. PROTECTION MAY CONSIST OF RUGGED FENCING, CRASH POSTS (BOLLARDS), CURBS OR OTHER ACCEPTABLE PROTECTION.
4. AMMONIA TANKS SHALL HAVE LOADING AND UNLOADING CONNECTIONS SECURED TO A CONCRETE BULKHEAD OR EQUIVALENT DESIGNED TO WITHSTAND A HORIZONTAL PULL OF NOT LESS THAN 2,000 POUNDS IN ANY DIRECTION, UNLESS OTHER SUITABLE PROTECTION IS PROVIDED. THE BULKHEAD SHALL NOT BE LOCATED UNDERNEATH THE TANK. THE LOADING AND UNLOADING CONNECTIONS SHALL BE FIRMLY SECURED TO THIS BULKHEAD AND THE PIPING BETWEEN THE BULKHEAD AND TANK SHALL BE INSTALLED IN A MANNER TO PROVIDE FOR EXPANSION, CONTRACTION, JARRING, VIBRATIONS, SETTLING, ETC. THE LOADING AND UNLOADING CONNECTIONS SHALL BE SECURELY FASTENED TO THE SKID OR TO THE TANK SUPPORTS. IT SHOULD BE NOTED THAT 2,000 POUNDS MAY NOT BE ADEQUATE FOR ALL SIZES OF LOADING AND UNLOADING HOSES AND CONNECTIONS.
5. WHERE EXCESS - FLOW VALVES ARE USED, LIQUID AND VAPOR LINES SHALL BE AT LEAST FULL SIZE FROM THE EXCESS - FLOW VALVE IN THE TANK TO THE POINT OF DISCHARGE OR AN ADDITIONAL EXCESS - FLOW OR EQUIVALENT SHALL BE LOCATED AS CLOSE TO THE POINT OF PIPE SIZE REDUCTION OR OTHER RESTRICTION AS IS PRACTICAL UNLESS THE EXCESS - FLOW VALVE IN THE TANK IS DESIGNED TO OPERATE AT THE REDUCED FLOW CONDITION, IN WHICH CASE THE EXCESS - FLOW VALVE IN THE TANK MAY SUFFICE.

   A QUICK - CLOSING MANUALLY OPERATED VALVE MAY BE CONSIDERED EQUIVALENT TO AN EXCESS - FLOW VALVE AT THE POINT OF PIPE SIZE REDUCTION OR OTHER RESTRICTION PROVIDED:

   6.1 IT IS EQUIPPED WITH A MEANS OF CLOSING THE VALVE MANUALLY FROM A POINT REMOTE FROM THE DELIVERY CONNECTION.

   6.2 THE LOADING AND/OR UNLOADING LINE IN WHICH IT IS LOCATED IS SECURED TO A BULKHEAD COMPLYING WITH CALIFORNIA CODE OF REGULATION, TITLE 8, SECTION 501, SUBSECTION E.

   6.3 THE QUICK - CLOSING VALVE IS IN THE PIPELINE ON THE TANK SIDE OF THE BULKHEAD.
6. THE CONTRACTOR SHALL SUPPLY THE FOLLOWING EQUIPMENT TO THE OWNER, ACCORDING TO CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTION 501, SUB-SECTION H THE EQUIPMENT IS TO BE INSTALLED, PROPERLY MAINTAINED, AND READILY AVAILABLE FOR USE AT ALL STORAGE TANKS IN READILY ACCESSIBLE LOCATIONS:

   6.1 TWO (2) FULL FACE RESPIRATORY DEVICES IN COMPLIANCE WITH SECTION 5144; ONE SELF CONTAINED BREATHING APPARATUS AND ONE (1) NH(3) GAS MASK WITH SPARE CANISTER.

   6.2 ONE PAIR NH(3) RESISTANT GLOVES.

   6.3 ONE PAIR NH(3) RESISTANT BOOTS.

   6.4 NH(3) RESISTANT PANTS AND JACKET AND/OR SLICKER.

   6.5 ONE QUICK - ACTING DELUGE SHOWER AND BUBBLE FOUNTAIN OR OTHER METHOD OF SIMULTANEOUSLY WASHING BOTH EYES WITH CLEAN WATER. THE MINIMUM WATER SUPPLY SHALL BE A 50 GALLON CONTAINER OF CLEAN WATER.

   6.6 ONE FIRST-AID KIT IN COMPLIANCE WITH SECTION 3400 OR 3439.

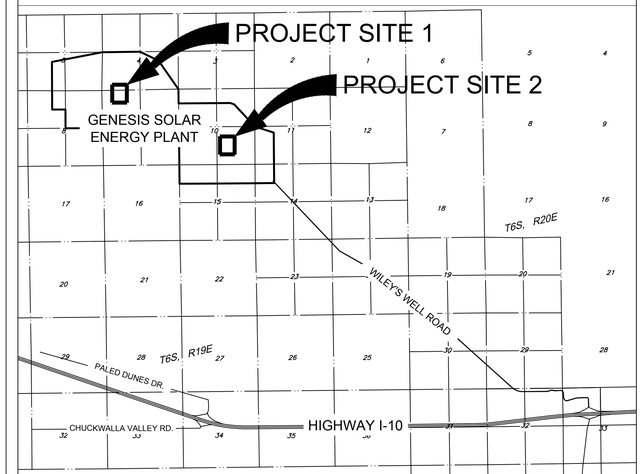
   6.7 ONE FIRE EXTINGUISHER CONFORMING TO THE PROVISIONS OF CALIFORNIA ADMINISTRATIVE CODE, TITLE 19, CHAPTER 1, SUBCHAPTER 3, AND HAVING A RATING OF NOT LESS THAN 40B-C.

THE OWNER SHALL HAVE A PROGRAM OF PERIODIC INSPECTION OF THE ABOVE EMERGENCY EQUIPMENT TO MAINTAIN THE EQUIPMENT IN A SERVICEABLE CONDITION.

NOTE: THERE ARE TWO (2) PROJECT SITES AT THE GENESIS SOLAR ENERGY PLANT, UNIT 1 AND UNIT 2 POWER BLOCKS, WHICH WILL REQUIRE AMMONIA SYSTEM IMPROVEMENTS. THE TWO (2) SITES ARE NEARLY IDENTICAL. THE IMPROVEMENT PLANS, AS PREPARED, REPRESENT THE IMPROVEMENTS REQUIRED FOR BOTH SITES. THERE MAY BE MINOR DIFFERENCES BETWEEN THE TWO (2) SITES. THE CONTRACTOR SHALL REVIEW BOTH SITES PRIOR TO THE PREPARATION OF THE PROPOSAL TO COMPLETE THE AMMONIA SYSTEM IMPROVEMENTS AND INCLUDE ANY COSTS RESULTANT FROM DIFFERENCES BETWEEN THE PROJECT SITES AND THE SITES AS ILLUSTRATED BY THESE PLANS WITHIN THE SUBMITTED PROPOSAL.

NOTE: THESE PLANS WERE PREPARED IN CONFORMANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY TERRACON - TERRACON PROJECT NUMBER 65105259C. SEE TERRACON REVIEW LETTER DATED JANUARY 29, 2018 ON DRAWING NUMBER C-5.

VICINITY MAP



NOT TO SCALE

SHEET INDEX

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NO.	REVISIONS:	APPROVED	DATE

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

DESIGN BY: RSN/ VG
DRAWN BY: RSN/AG/VG
CHECKED BY: RKH

PROJECT BENCH MARK:

REGISTERED PROFESSIONAL ENGINEER — ROBERT K. HOLT — No. 27943 — Exp. 3-31-20 — CIVIL — STATE OF CALIFORNIA

PREPARED UNDER THE DIRECT SUPERVISION OF:

ROBERT K. HOLT, P.E. — 27943 R.C.E. NO.

07/20/2018 DATE — 3/31/20 REG. EXP.

PROJECT TITLE:
GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT

SHEET CONTENT:
TITLE SHEET

SHEET 1
C-1
OF 9 SHEETS
JOB NO. 632.102

DATE PLOTTED=> 7.20.2018
TIME PLOTTED=> 4:04 PM

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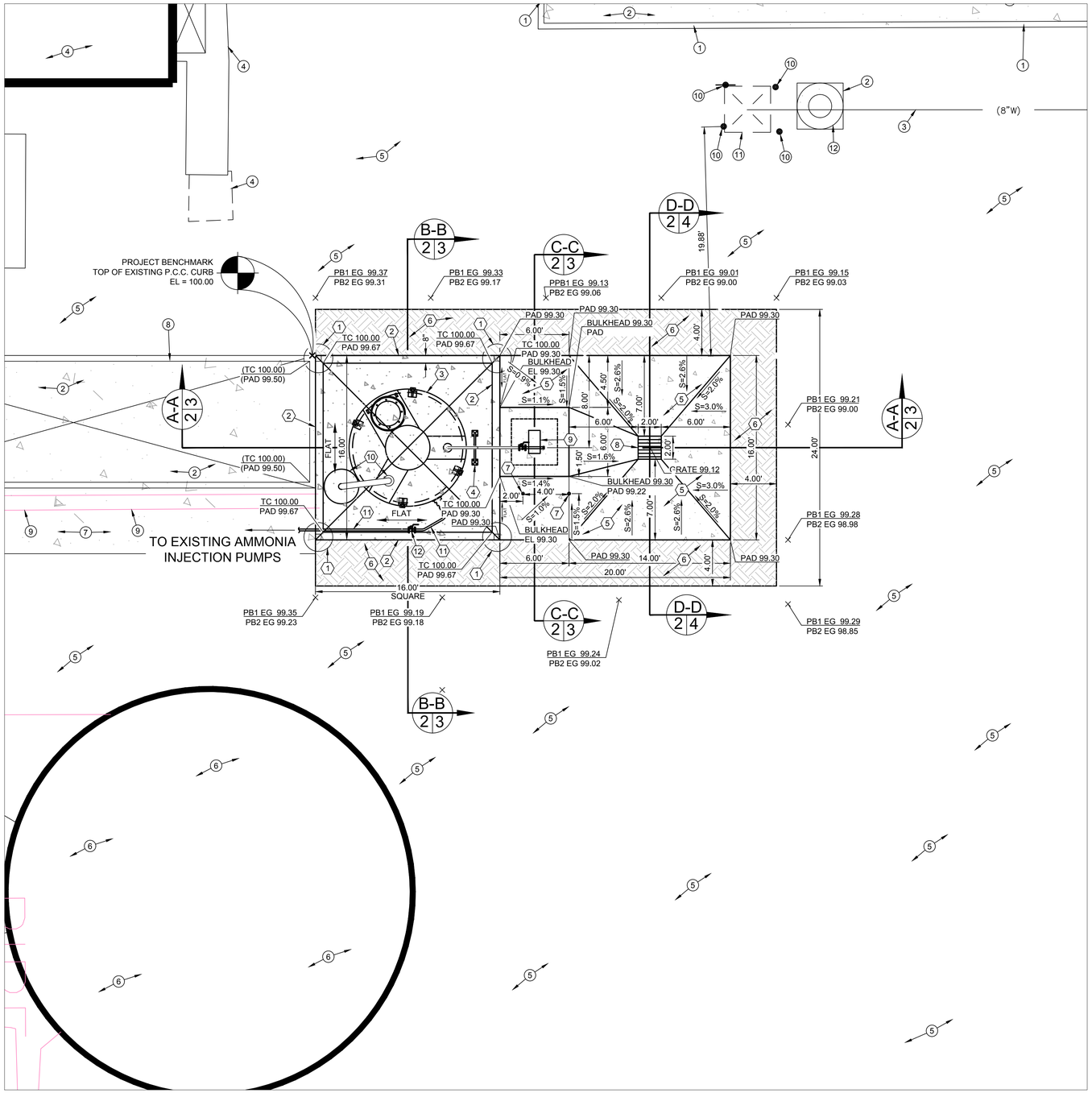
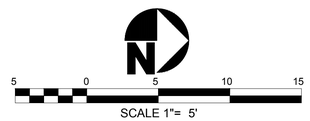


EXISTING KEYNOTES

1. EXISTING 6-INCH P.C.C. CURB TO REMAIN.
2. EXISTING P.C.C. CONCRETE PAD TO REMAIN.
3. EXISTING 8-INCH DIAMETER FIRE PROTECTION WATER PIPELINE TO REMAIN.
4. EXISTING SOLAR ENERGY PLANT FACILITIES.
5. EXISTING NATIVE MATERIAL TO REMAIN.
6. EXISTING DEMINERALIZED WATER TANK TO REMAIN.
7. EXISTING P.C.C. SIDEWALK TO REMAIN.
8. EXISTING SHADE STRUCTURE TO REMAIN.
9. EXISTING OVERHEAD PIPE RACK TO REMAIN.
10. EXISTING BOLLARD TO REMAIN.
11. EXISTING FIRE MONITOR TO REMAIN.
12. EXISTING FIRE SUPPRESSION CHEMICAL CONTAINER TO REMAIN.

CONSTRUCTION KEYNOTES

1. INSTALL NEW P.C.C. CONCRETE FOOTING FOR SHADE STRUCTURE PER DRAWINGS S-1, S-2, S-3 AND S-1.1.
2. INSTALL NEW 6-INCH REINFORCED P.C.C. CONCRETE PAD PER DRAWINGS S-1, S-2, S-3 AND S-1.1.
3. INSTALL NEW 3,150 GALLON SAFE TANK ASSEMBLY PER MANUFACTURERS RECOMMENDATIONS. SEE SECTION DETAIL A-A AND SECTION DETAIL B-B ON SHEET 3.
4. INSTALL NEW 1-5/8 - INCH STAINLESS STEEL UNISTRUT PIPE SUPPORT ASSEMBLY PER SECTION A-A AND SECTION B-B ON SHEET 3.
5. INSTALL NEW TANK TRUCK SPILL CONTAINMENT P.C.C. PAD PER SECTION A-A ON SHEET 3 AND SECTION D-D ON SHEET 4.
6. INSTALL NATIVE BACKFILL MATERIAL AFTER THE INSTALLATION OF THE P.C.C. TRUCK SPILL PAD. COMPACT THE NATIVE MATERIAL TO 90 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557. PLACE THE NATIVE BACKFILL MATERIAL LEVEL WITH THE TOP EXTERIOR EDGE OF THE P.C.C. SPILL PAD FOR A HORIZONTAL DISTANCE OF 4 FEET TO DAYLIGHT.
7. INSTALL A 3-INCH DIAMETER 7'-6" LONG, 8-GAUGE STEEL BOLLARD PIPE. THE BOLLARD PIPE SHALL EXTEND 3 FEET ABOVE THE FINISH SLAB GRADE AND 4'-6" BELOW THE FINISH SLAB GRADE. COAT THE BOLLARD PIPE WITH TWO (2) COATS OF A SAFETY YELLOW EPOXY COATING SYSTEM. INSTALL A SELF-ADHESIVE REFLECTORIZED TAPE AROUND THE BOLLARD PIPE 3 INCHES BELOW THE TOP OF THE PIPE. FILL THE BOLLARD PIPE WITH P.C.C. CONCRETE. PLACE A CONVEX CONCRETE CAP AT TOP OF BOLLARD PIPE. SEE DETAIL D ON SHEET 5.
8. INSTALL NEW 48-INCH X 48-INCH JENSEN PRECAST CONCRETE VAULT WITH A 24-INCH X 24-INCH STEEL DROP INLET GRATE OR APPROVED EQUAL PER SECTION DETAIL D-D ON SHEET 4 AND DETAIL B ON SHEET 5.
9. INSTALL PRE-FABRICATED STEEL UNLOADING BULKHEAD DESIGNED TO WITHSTAND A HORIZONTAL PULL OF NOT LESS THAN 2,000 POUNDS IN ANY DIRECTION PER CCR, TITLE 8, SECTION 501.
10. INSTALL 6-INCH DIAMETER VENT AND 6-INCH DIAMETER PIPELINE WITH CHECK VALVE. CONNECT THE VENTILATION PIPELINE TO A 3-FOOT DIAMETER, 4-FOOT HIGH SCRUBBER UNIT PER DETAIL C ON SHEET 5.
11. 2-INCH DIAMETER 316 STAINLESS STEEL OUTLET PIPELINE WITH PVC OUTLET CONTAINMENT HOUSING EXTENDING FROM THE CHEMICAL TANK TO THE EXISTING AMMONIA INJECTION PUMPS. THE OUTLET PIPELINE IS TO BE INSTALLED BY GENESIS SOLAR ENERGY PLANT OPERATION PERSONEL.
12. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL BALL VALVE ALONG THE DISCHARGE PIPELINE.



SCALE 1"= 5'

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NO.	REVISIONS:	APPROVED	DATE

DESIGN BY: RSN/ VG
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PROJECT BENCH MARK:

REGISTERED PROFESSIONAL ENGINEER — ROBERT K. HOLT — No. 27943 — Exp. 3-31-20 — CIVIL — STATE OF CALIFORNIA

PREPARED UNDER THE DIRECT SUPERVISION OF:

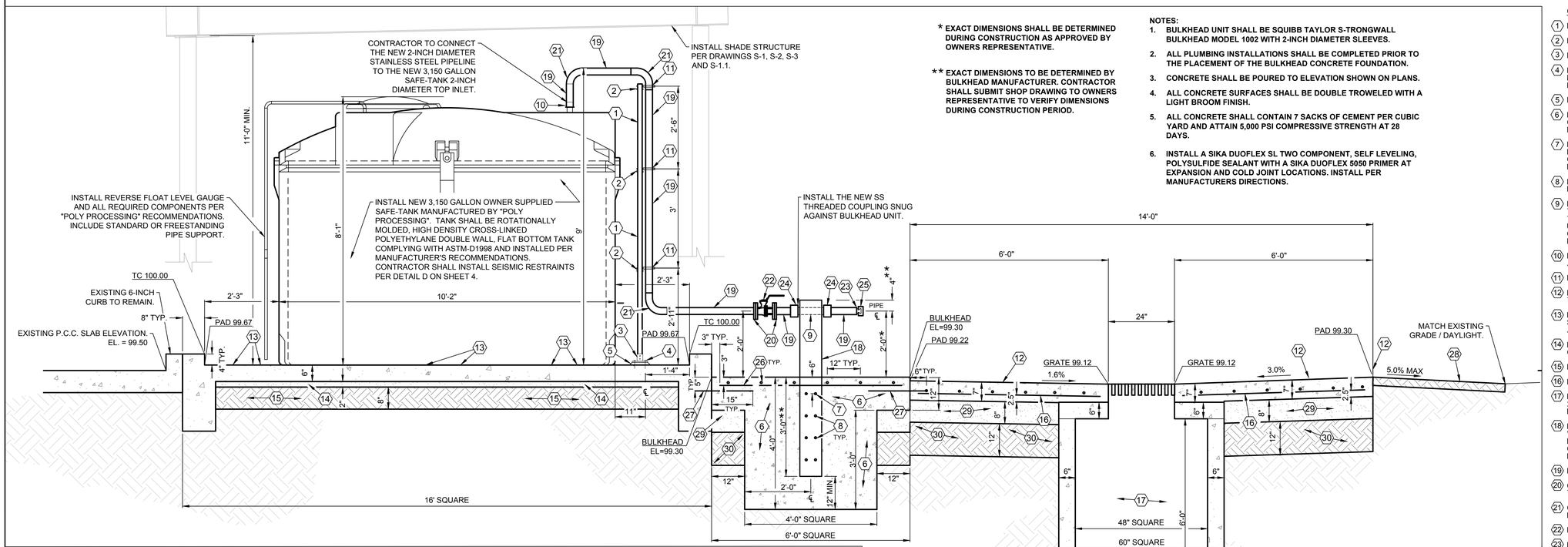
ROBERT K. HOLT, P.E. — 27943 R.C.E. NO.

07/20/2018 DATE — 3/31/20 REG. EXP.

PROJECT TITLE:
GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT

SHEET CONTENT:
DEMOLITION/SITE PLAN

SHEET 2
C-2
OF 9 SHEETS
JOB NO. 632.102



* EXACT DIMENSIONS SHALL BE DETERMINED DURING CONSTRUCTION AS APPROVED BY OWNERS REPRESENTATIVE.

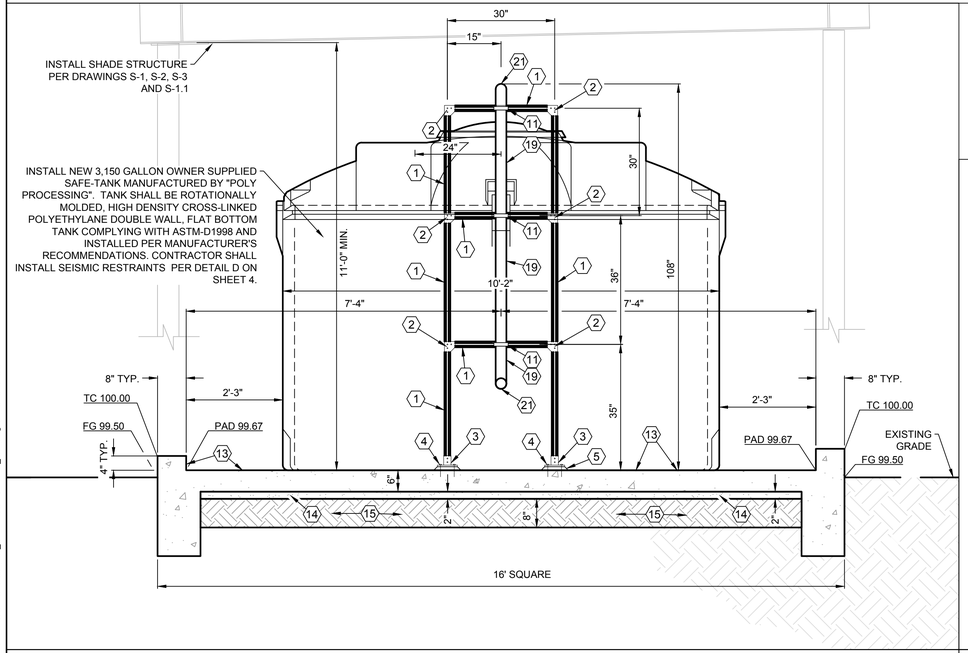
** EXACT DIMENSIONS TO BE DETERMINED BY BULKHEAD MANUFACTURER. CONTRACTOR SHALL SUBMIT SHOP DRAWING TO OWNERS REPRESENTATIVE TO VERIFY DIMENSIONS DURING CONSTRUCTION PERIOD.

NOTES:

1. BULKHEAD UNIT SHALL BE SQUIBB TAYLOR S-TRONGWALL BULKHEAD MODEL 1002 WITH 2-INCH DIAMETER SLEEVES.
2. ALL PLUMBING INSTALLATIONS SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF THE BULKHEAD CONCRETE FOUNDATION.
3. CONCRETE SHALL BE POURED TO ELEVATION SHOWN ON PLANS.
4. ALL CONCRETE SURFACES SHALL BE DOUBLE TROWELED WITH A LIGHT BROOM FINISH.
5. ALL CONCRETE SHALL CONTAIN 7 SACKS OF CEMENT PER CUBIC YARD AND ATTAIN 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
6. INSTALL A SIKA DUOFLEX SL TWO COMPONENT, SELF LEVELING, POLYSULFIDE SEALANT WITH A SIKA DUOFLEX 5050 PRIMER AT EXPANSION AND COLD JOINT LOCATIONS. INSTALL PER MANUFACTURERS DIRECTIONS.

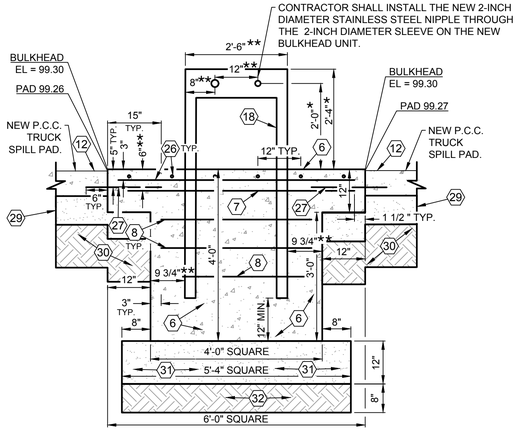
AMMONIA SAFE-TANK AND TANK TRUCK SPILL PAD SECTION DETAIL A-A (2 | 3)

SCALE: 1" = 20'



AMMONIA SAFE-TANK INSTALLATION SECTION DETAIL B-B (2 | 3)

SCALE: 1" = 20'



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NOTES:

1. BULKHEAD UNIT SHALL BE SQUIBB TAYLOR S-TRONGWALL BULKHEAD MODEL 1002 WITH 2-INCH DIAMETER SLEEVES.
2. ALL PLUMBING INSTALLATIONS SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF THE BULKHEAD CONCRETE FOUNDATION.
3. CONCRETE SHALL BE POURED TO ELEVATION SHOWN ON PLANS.
4. ALL CONCRETE SURFACES SHALL BE DOUBLE TROWELED WITH A LIGHT BROOM FINISH.
5. ALL CONCRETE SHALL CONTAIN 7 SACKS OF CEMENT PER CUBIC YARD AND ATTAIN 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
6. INSTALL A SIKA DUOFLEX SL TWO COMPONENT, SELF LEVELING, POLYSULFIDE SEALANT WITH A SIKA DUOFLEX 5050 PRIMER AT EXPANSION AND COLD JOINT LOCATIONS. INSTALL PER MANUFACTURERS DIRECTIONS.

TRUCK UNLOADING STATION SECTION DETAIL C-C (2 | 3)

SCALE: 1" = 20'

CONSTRUCTION KEYNOTES

1. INSTALL NEW STAINLESS STEEL 1-5/8 X 1-5/8 UNISTRUT CHANNEL.
2. INSTALL NEW STAINLESS STEEL UNISTRUT FLAT PLATE.
3. INSTALL NEW STAINLESS STEEL UNISTRUT BASE.
4. INSTALL 1/2-INCH SELF DRILLING STAINLESS STEEL PHILLIPS ANCHOR BOLT. MINIMUM OF 10 TIMES BOLT DIAMETER EMBEDMENT. MINIMUM OF 4 BOLTS REQUIRED. TYP.
5. INSTALL 1" MINIMUM, NON-SHRINK LEVELING GROUT. TYP.
6. INSTALL A SEVEN (7) SACK P.C.C. CONCRETE MIX FOR THE BULKHEAD CONCRETE FOUNDATION AFTER THE INSTALLATION OF THE AMMONIA PIPELINE HAS BEEN COMPLETED.
7. INSERT 69-INCH LONG, #5 REBAR THROUGH THE TOP TWO (2) HOLES ON THE LEGS OF THE NEW PRE-FABRICATED STEEL UNLOADING BULKHEAD. CONTRACTOR SHALL PLACE BRICKS UNDER THE UPPER BARS TO HOLD THE BULKHEAD UNIT IN POSITION.
8. INSERT 42-INCH LONG, #5 REBAR THROUGH THE BOTTOM SIX (6) HOLES ON THE LEGS OF THE NEW PRE-FABRICATED STEEL UNLOADING BULKHEAD.
9. INSTALL NEW 2-INCH DIAMETER, 12-INCH LONG 316 STAINLESS STEEL THREADED NIPPLE. CONTRACTOR TO INSTALL THE STAINLESS STEEL NIPPLE THROUGH THE 2-INCH DIAMETER SLEEVE ON THE NEW S-TRONGWALL UNLOADING BULKHEAD. ATTACH A NEW STAINLESS STEEL THREADED COUPLING ADJACENT TO THE BACK SIDE OF THE BULKHEAD TO PREVENT NIPPLE FROM PULLING THROUGH.
10. INSTALL A NEW 2-INCH DIAMETER STAINLESS STEEL PIPE X NPT FEMALE ADAPTER.
11. INSTALL NEW STAINLESS STEEL PIPE SUPORT.
12. INSTALL NEW 7-INCH THICK P.C.C. SPILL PAD. CONCRETE TO BE DOUBLE TROWELED WITH LIGHT BROOM FINISH.
13. INSTALL P.C.C. CONCRETE PAD WITH P.C.C. CONCRETE CURB PER STRUCTURAL DRAWINGS S-1, S-2, S-3 AND S-1.1. THE P.C.C. CONCRETE PAD AND P.C.C. CONCRETE CURB SHALL BE POURED MONOLITICALLY.
14. INSTALL 2 INCHES OF CLEAN SAND IN CONFORMANCE WITH THE GEOTECHNICAL REPORT.
15. RECOMPACT ENGINEERED FILL PER THE GEOTECHNICAL REPORT.
16. INSTALL #4 REINFORCING BARS 1 FOOT ON CENTER EACH WAY.
17. INSTALL NEW 48-INCH X 48-INCH JENSEN PRECAST CONCRETE VAULT WITH A 24-INCH X 24-INCH STEEL DROP INLET GRATE OR APPROVED EQUAL PER DETAIL B ON SHEET 5.
18. INSTALL PRE-FABRICATED STEEL UNLOADING BULKHEAD DESIGNED TO WITHSTAND A HORIZONTAL PULL OF NOT LESS THAN 2,000 POUNDS IN ANY DIRECTION PER CCR, TITLE 8, SECTION 501. PAINT BULKHEAD WITH TWO (2) MIL. COATS OF A POLYURETHANE COATING SYSTEM. COLOR OF COATING TO BE DETERMINED BY THE OWNER.
19. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL PIPE.
20. CONTRACTOR TO WELD A 2-INCH DIAMETER 316 STAINLESS STEEL FLANGE ON THE NEW 2-INCH DIAMETER STAINLESS STEEL PIPE.
21. CONTRACTOR TO WELD A NEW 2-INCH DIAMETER 316 STAINLESS STEEL 90 DEGREE ELBOW TO THE NEW 2 -INCH DIAMETER STAINLESS STEEL PIPE.
22. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL FLANGED BALL VALVE.
23. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL THREADED CAMLOCK FITTING.
24. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL THREADED COUPLING
25. INSTALL NEW 2-INCH DIAMETER 316 STAINLESS STEEL CAMLOCK CAP FITTING.
26. INSTALL 5'-9" LONG, NO. 5 REINFORCING BARS 12 INCHES ON CENTER, EACH WAY.
27. INSTALL 1'-9" LONG, #5 REINFORCING DOWELS 1-FOOT ON CENTER AROUND THE PERIMETER OF THE BULKHEAD FOUNDATION. DRILL THE DOWELS 6 INCHES INTO THE NEW P.C.C. SLAB OR CURB. SECURE THE DOWELS WITH EPOXY.
28. INSTALL NATIVE MATERIAL BACKFILL AFTER THE CONSTRUCTION OF THE P.C.C. SPILL PAD. COMPACT THE NATIVE MATERIAL TO 90 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557. PLACE THE NATIVE BACKFILL MATERIAL LEVEL WITH THE TOP EXTERIOR EDGE OF THE P.C.C. SPILL PAD FOR A HORIZONTAL DISTANCE OF 4 FEET TO DAYLIGHT.
29. INSTALL 8 INCHES OF CLASS 2 BASE, COMPACT THE CLASS 2 BASE TO 95 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557.
30. SCARIFY AND COMPACT THE EXISTING NATIVE MATERIAL FOR A DEPTH OF 1-FOOT. COMPACT THE NATIVE MATERIAL TO 90 PERCENT OF MAXIMUM DENSITY AT 2 PERCENT OVER OPTIMUM WATER CONTENT PER ASTM D-1557.
31. INSTALL 12 INCHES OF CLASS 2 BASE BENEATH THE BULKHEAD FOUNDATION. COMPACT THE CLASS 2 BASE TO 95 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557.
32. SCARIFY AND COMPACT THE EXISTING NATIVE MATERIAL BENEATH THE P.C.C. BULKHEAD FOUNDATION TO 90 PERCENT OF MAXIMUM DENSITY AT 2 PERCENT OVER OPTIMUM WATER CONTENT PER ASTM D-1557.

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07/20/2018 DATE — 3/31/20 REG. EXP.

PROJECT TITLE:
GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT

SHEET CONTENT:
DETAIL SHEET

SHEET 3
C-3
OF 9 SHEETS
JOB NO. 632.102

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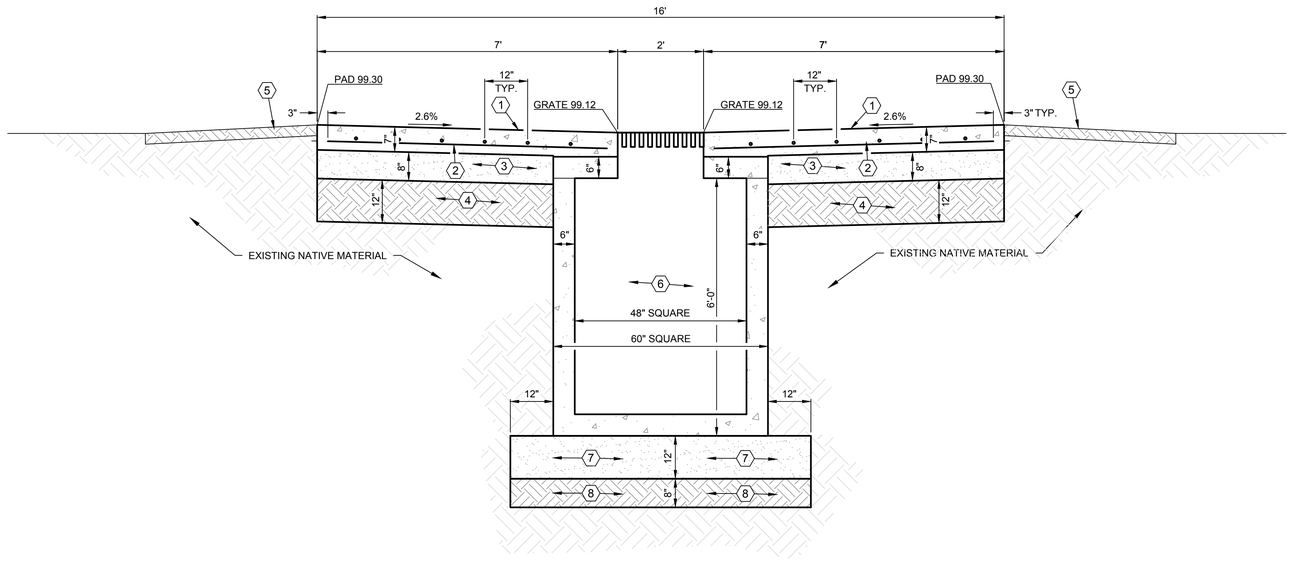


CONSTRUCTION KEYNOTES

1. INSTALL NEW 7-INCH THICK P.C.C. SPILL PAD. CONCRETE TO BE DOUBLE TROWELED WITH LIGHT BROOM FINISH.
2. INSTALL #4 REINFORCING BARS 1 FOOT ON CENTER EACH WAY.
3. INSTALL 8 INCHES OF CLASS 2 BASE. COMPACT THE CLASS 2 BASE TO 95 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557.
4. SCARIFY AND COMPACT THE EXISTING NATIVE MATERIAL FOR A DEPTH OF 1-FOOT. COMPACT THE NATIVE MATERIAL TO 90 PERCENT OF MAXIMUM DENSITY AT 2 PERCENT OVER OPTIMUM WATER CONTENT PER ASTM D-1557.
5. INSTALL NATIVE BACKFILL MATERIAL AFTER THE CONSTRUCTION OF THE P.C.C. SPILL PAD. COMPACT THE NATIVE MATERIAL TO 90 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557. PLACE THE NATIVE BACKFILL MATERIAL LEVEL WITH THE TOP EXTERIOR EDGE OF THE P.C.C. SPILL PAD FOR A HORIZONTAL DISTANCE OF 4 FEET TO DAYLIGHT.
6. INSTALL NEW 48-INCH X 48-INCH JENSEN PRECAST CONCRETE VAULT WITH A 24-INCH X 24-INCH STEEL DROP INLET GRATE OR APPROVED EQUAL PER DETAIL B ON SHEET 5.
7. INSTALL 12 INCHES OF CLASS 2 BASE BENEATH THE CATCH BASIN. COMPACT THE CLASS 2 BASE TO 95 PERCENT OF MAXIMUM DENSITY PER ASTM D-1557.
8. SCARIFY AND COMPACT THE EXISTING NATIVE MATERIAL BENEATH THE CATCH BASIN TO 90 PERCENT OF MAXIMUM DENSITY AT 2 PERCENT OVER OPTIMUM WATER CONTENT PER ASTM D-1557.

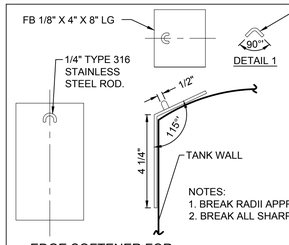
NOTES:

1. **BULKHEAD UNIT SHALL BE SQUIBB TAYLOR S-TRONGWALL BULKHEAD MODEL 1002 WITH 2-INCH DIAMETER SLEEVES.**
2. **ALL PLUMBING INSTALLATIONS SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF THE BULKHEAD CONCRETE FOUNDATION.**
3. **CONCRETE SHALL BE POURED TO ELEVATION SHOWN ON PLANS.**
4. **ALL CONCRETE SURFACES SHALL BE DOUBLE TROWELED WITH A LIGHT BROOM FINISH.**
5. **ALL CONCRETE SHALL CONTAIN 7 SACKS OF CEMENT PER CUBIC YARD AND ATTAIN 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.**
6. **INSTALL A SIKA DUOFLEX SL TWO COMPONENT, SELF LEVELING, POLYSULFIDE SEALANT WITH A SIKA DUOFLEX 5050 PRIMER AT EXPANSION AND COLD JOINT LOCATIONS. INSTALL PER MANUFACTURERS DIRECTIONS.**

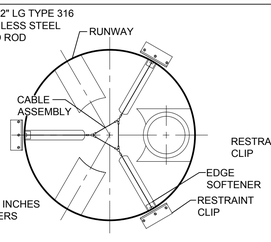
TANK TRUCK SPILL PAD AND DROP INLET CATCH BASIN SECTION DETAIL

D-D 3 | 4

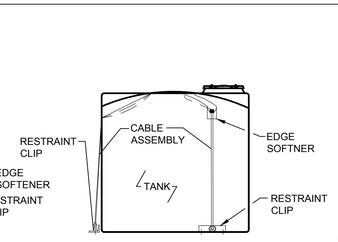
NOT TO SCALE



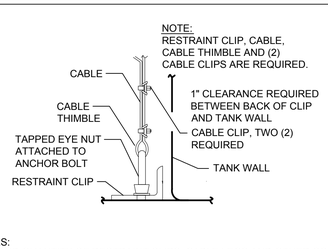
EDGE SOFTENER FOR NON-INSULATED TANKS (CABLE NOT SHOWN)

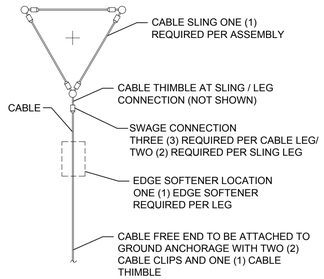


3-WAY CABLE / 3 RESTRAINT CLIP LAYOUT



3-WAY CABLE / 3 RESTRAINT CLIP ELEVATION VIEW

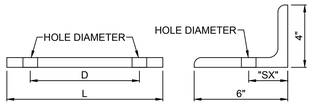




CABLE ASSEMBLY (ONE LEG SHOWN)

NOTES:
1. SIZE AND QUANTITY OF RESTRAINT CLIPS, CABLE LEGS AND OTHER COMPONENTS MAY VARY ACCORDING TO TANK SIZE AND RESTRAINT SYSTEM RATING.
2. RESTRAINT SYSTEM SHALL BE IN STRICT CONFORMANCE WITH THE LATEST CALIFORNIA BUILDING CODE AND DESIGNED FOR OUTDOORS.
3. ANCHOR BOLTS SHALL BE SUPPLIED BY TANKS SUPPLIER. ANCHOR BOLT LENGTH, EMBEDMENT AND METHOD OF ANCHORAGE TO BE DETERMINED BY TANK SUPPLIER TO MEET THE LATEST CALIFORNIA BUILDING CODE.

RESTRAINT CLIP / CABLE CONNECTION



HOT ROLLED STRUCTURAL ANGLE SIZE	"L" CLIP LENGTH	"D" DISTANCE BETWEEN HOLES	HOLE DIAMETER	NUMBER OF HOLES REQUIRED	RESTRAINT CLIP DESIGNATION	DIM "SX" *
L 6 X 4 X 5/8	4"	N/A	11/16"	1	RC 6 X 4 X 5/8 X 4	2"
L 6 X 4 X 5/8	10"	7 1/2"	13/16"	2	RC 6 X 4 X 5/8 X10	2 1/4"
L 6 X 4 X 5/8	16"	13"	15/16"	2	RC 6 X 4 X 5/8 X 16	2 1/2"
L 6 X 4 X 5/8	24"	10 1/2"	15/16"	3	RC 6 X 4 X 5/8 X 24	2 1/2"

* TOLERANCE ON DIMENSION "SX" = ± 1/8 - 0 INCHES

NOTES:
1. RESTRAINT CLIPS SHALL BE HOT DIP GALVANIZED A36 STRUCTURAL ANGLE.
2. CONTACT MANUFACTURER FOR NUMBER AND SIZE OF CLIPS FOR WIND AND SEISMIC REQUIRMENTS PER THE LATEST CALIFORNIA BUILDING CODE.

HOT DIP GALVANIZED RESTRAINT CLIPS

TANK RESTRAINT SYSTEM DETAIL

A 3 | 4

NOT TO SCALE

The Holt Group, Inc.
ENGINEERING PLANNING SURVEYING

EL CENTRO OFFICE
1601 N. Imperial Ave.
El Centro, CA 92243
(760) 337-3883

BLYTHE OFFICE
201 E. Hobsonway
Blythe, CA 92225
(760) 922-4658

NO.	REVISIONS:	APPROVED	DATE

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

DESIGN BY: RSN/ VG
DRAWN BY: RSN/AG/VG
CHECKED BY: RKH

PROJECT BENCH MARK:

REGISTERED PROFESSIONAL ENGINEER — ROBERT K. HOLT No. 27943 Exp. 3-31-20 — CIVIL — STATE OF CALIFORNIA

PREPARED UNDER THE DIRECT SUPERVISION OF:

ROBERT K. HOLT, P.E. — 27943 R.C.E. NO.

07/20/2018 DATE — 3/31/20 REG. EXP.

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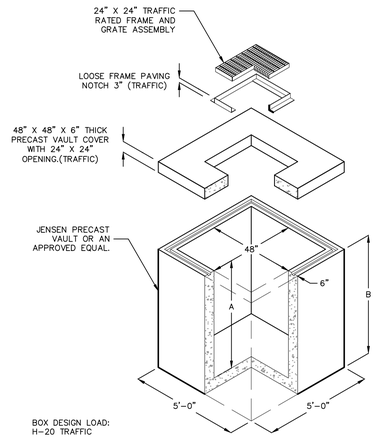
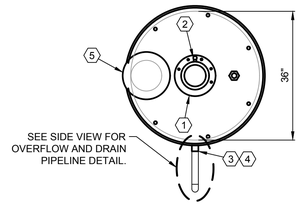
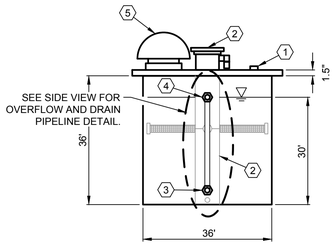


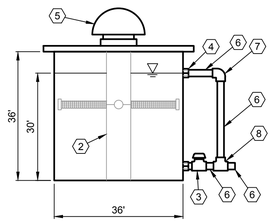
MODEL	A	B	INSIDE VOLUME		APPROX. WT.
4848U-72	6'-0"	6'-6"	96 CU. FT.	710 GAL.	9975 LBS.

PRECAST VAULT DETAIL B — NOT TO SCALE — 2,3 | 5

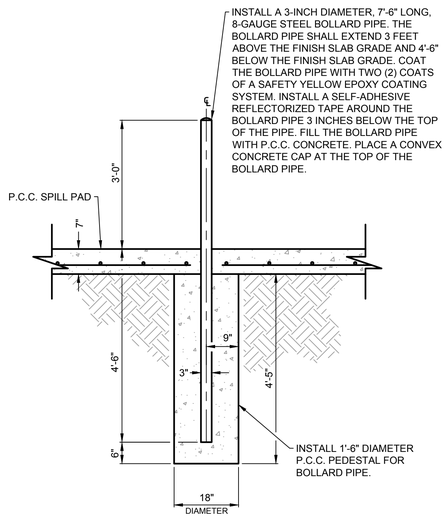


ITEM NO.	DEGREE	RADIUS	HEIGHT	SIZE	CONNECTION	MATERIAL	GASKET	DESCRIPTION
1	90	9"	-	1"	FPT	PVC	EPDM	WATER INLET
2	TDC	-	-	6"	STUB	PVC	-	FUME INLET WITH (5) 3" INTERNAL SPARGE ARMS AND A 2" PVC BALL CHECK VALVE (VACUUM RELIEF)
3	180	-	4"	1"	FPT	PVC	EPDM	DRAIN WITH PVC BALL VALVE.
4	180	-	30"	1"	FPT	PVC	EPDM	OVERFLOW / OPERATING WATER LEVEL
5	270	MAX	36"	8"	SPIG	HDPE	-	MUSHROOM VENT
6	180	MAX	-	1"	-	PVC	-	SCHEDULE 80 PVC PIPELINE
7	180	MAX	30"	1"	-	PVC	-	SCHEDULE 80 PVC 90-DEGREE ELBOW
8	180	MAX	4"	1"	-	PVC	-	SCHEDULE 80 PVC TEE





SCRUBBER TANK DETAIL C — NOT TO SCALE — 2 | 5



BOLLARD DETAIL D — NOT TO SCALE — 2 | 5

GEOTECHNICAL REPORT PLAN REVIEW LETTER

Terracon

January 29, 2018

The Holt Group
ENGINEERING • SURVEYING • PLANNING
1601 North Imperial Avenue
El Centro, CA 92243

Attn: Mr. James G. "Jack" Holt, P.E.
P: (760) 337-3883
E: jack@theholtgroup.net

RE: Ammonia Tank Foundation Plans Review
Genesis Solar Project
11995 Wiley's Well Road
Blythe, California
Terracon Project No. 65105259C

Dear Mr. Holt,

As requested, Terracon is providing the following letter documenting our review of the Ammonia Tank Foundation plans prepared for the proposed project and provided on January 25, 2018.

References:

1. The Holt Group, Inc. "*Genesis Solar Energy Plant Ammonia System Improvement Project*" Sheets S-1, S-2, and S-3 dated on January 22, 2018.
2. Terracon, "Supplemental *Geotechnical Engineering Report, Genesis Solar Project*" Terracon Project No. 65105259, dated September 13, 2011.
3. Terracon, "Geotechnical Engineering Update Letter, *Genesis Solar Project*" Terracon Project No. 65105259C, dated November 25, 2014.

Based on our review of the above referenced plans (Reference 1), it is our opinion that the geotechnical recommendations presented in our referenced report (References 2 & 3) have generally been incorporated into the referenced plan sheets cited above.

Terracon Consultants, Inc. 1421 Edinger Avenue, Suite C Tustin, California 92780
P [949] 261 0051 F [949] 261 6110 terracon.com
Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

Ammonia Tank Foundation Plans Review
Genesis Solar Project ▪ Blythe, CA
January 29, 2018 ▪ Terracon Project No. 65105259C

Terracon

The referenced plans have been reviewed for Geotechnical aspects only. We make no representation regarding accuracy of dimensions, quantities, measurement, calculations or any portion of the design not related to the geotechnical aspects of this project.

If you have any inquiries or comments on this, please do not hesitate to contact the undersigned at (949) 261-0051.

Sincerely,
Terracon Consultants, Inc.

Joshua R. Morgan
Project Engineer

REGISTERED PROFESSIONAL ENGINEER F. FRED BUHAMDAN C# 7455 CIVIL STATE OF CALIFORNIA

F. Fred Buhamdan, P.E.
Principal

The Holt Group, Inc.
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CHECKED BY: RKH

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PREPARED UNDER THE DIRECT SUPERVISION OF:
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27943 R.C.E. NO.
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GEOTECHNICAL REPORT PLAN REVIEW LETTER AND DETAIL SHEET

SHEET 5
C-5
OF 9 SHEETS
JOB NO. 632.102

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GENERAL NOTES

PERFORM CONSTRUCTION AND WORKMANSHIP IN COMPLIANCE WITH THE DRAWINGS, SPECIFICATIONS AND THE 2016 CALIFORNIA BUILDING CODE (2016 CBC) & 2015 INTERNATIONAL BUILDING CODE (2015 IBC).

GOVERNING CODE AUTHORITY CITY OF BLYTHE, CALIFORNIA.

THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION. NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES. DO NOT SCALE DRAWINGS.

ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OTHERWISE. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THESE GENERAL NOTES AND TYPICAL DETAILS.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER.

ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS ARE TO BE CONSIDERED PART OF THE DOCUMENT PACKAGE AND ARE TO BE USED TO DEFINE LOCATION AND CONFIGURATIONS INCLUDING BUT NOT LIMITED TO CONCRETE CURB HEIGHT AND LOCATION. FLOOR DRAINS, SLAB DEPRESSIONS, ROOF OPENINGS, DUCT PENETRATIONS, ELECTRICAL CONDUIT RUNS, CONNECTIONS FOR PIPES, DUCTS AND EQUIPMENT, DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, SLOPES, STAIRS, RAILINGS, AND WATERPROOFING.

REFER TO THE ARCHITECTURAL SPECIFICATIONS (WHERE APPLICABLE) FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE STRUCTURAL DRAWINGS.

ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS FOR THE WORKING DRAWINGS (AND/OR ARCHITECTURAL SPECIFICATIONS WHERE APPLICABLE) SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY OF THE WORK INVOLVED. APPROVAL BY GOVERNING AGENCY DOES NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS OR SPECIFICATIONS.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, UNLESS OTHERWISE SHOWN. THEY DO NOT INDICATE MEANS AND METHODS OF CONSTRUCTION. CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ADEQUATE ERECTION SHORING, BRACING AND GUYS THAT COMPLY WITH LOCAL STATE, OSHA AND NATIONAL SAFETY STANDARDS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES COMPLYING WITH ALL LOCAL STATES OSHA, AND NATIONAL SAFETY STANDARDS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUB-CONTRACTORS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING AND SHORING ALL EXCAVATIONS, TEMPORARY AND EXISTING STRUCTURES AND PARTIALLY COMPLETED PORTIONS OF THE WORK TO ASSURE THE SAFETY OF ANY OF ALL WORK AND MATERIALS INCLUDING THOSE PERSONS COMING IN CONTACT WITH THE WORK.

THE CONTRACTOR SHALL INVESTIGATE THE SITE FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS FOUNDATIONS, CESSPOOLS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, THE STRUCTURAL ENGINEER SHALL BE IMMEDIATELY NOTIFIED.

OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE STRUCTURAL ENGINEER DO NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES, OR METHODS OF CONSTRUCTION. CONSTRUCTION SUPPORT SERVICES PERFORMED BY REPRESENTATIVES OF THE STRUCTURAL ENGINEER SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES PERFORMED BY OTHERS. OBSERVATION VISITS TO THE SITE BY THE ENGINEERS FIELD REPRESENTATIVE SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

FOR PROPER FIELD OBSERVATION BY THE STRUCTURAL ENGINEER, THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF THE VARIOUS CONSTRUCTION PHASES.

NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS, HOLES, POCKETS, ETC., IN STRUCTURAL ELEMENTS BUT ARE NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DOCUMENTS.

DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS.

ALL CODES AND SPECIFICATIONS NOTED ON THESE DRAWINGS SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS BY THE GOVERNING CODE AUTHORITY HAVING JURISDICTION OVER THIS PROJECT.

THE CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS PRIOR TO SUBMISSION TO THE STRUCTURAL ENGINEER. REVIEW THE SHOP DRAWINGS FOR COMPLETENESS AND COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. SUBMIT A WRITTEN REQUEST TO THE STRUCTURAL ENGINEER FOR APPROVAL OF ANY MODIFICATION OR SUBSTITUTION. SUBSTITUTIONS AND MODIFICATIONS MUST BE APPROVED PRIOR TO SUBMISSION OF THE SHOP DRAWINGS TO THE STRUCTURAL ENGINEER. CLOUD THE SHOP DRAWINGS AT LOCATIONS OF ALL MODIFICATIONS. MAINTAIN A COPY OF ALL APPROVED SHOP DRAWINGS AT SITE DURING CONSTRUCTION.

SHOP DRAWINGS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF DESIGN INTENT (MINIMUM OF 10 WORKING DAYS).

ALL ASTM DESIGNATIONS SHALL BE AS AMENDED TO DATE UNLESS NOTED OTHERWISE.

IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS OR DETAILS ON THE STRUCTURAL DRAWINGS.

VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.

NO FRAMING OF ANY TYPE SHALL BE CONCEALED PRIOR TO INSPECTION BY GOVERNING AGENCIES.

GRADING AND DRAINAGE, ALL PAVING, FLAT WORK AND PLANTERS NEXT TO BUILDING SHALL BE PROPERLY GRADED TO CARRY WATER AWAY FROM BUILDINGS.

NO CHANGES ARE TO BE MADE TO THOSE PLANS WITHOUT THE KNOWLEDGE AND CONSENT OF THE STRUCTURAL ENGINEER WHOSE SIGNATURE APPEARS HEREON.

CONTINUOUS (OR SPECIAL) INSPECTION SHALL MEAN INSPECTION DONE CONTINUOUSLY BY A REGISTERED SPECIAL INSPECTOR CURRENTLY LICENSED BY THE STATE AND THE CITY AND APPROVED BY THE ARCHITECT AND ENGINEER.

FOUNDATION

REFER TO SOIL INVESTIGATION BY: TERRACON CONSULTANTS, INC.
DATED: NOVEMBER 25, 2014 JOB# 65105259 SOIL INVESTIGATION AND ADDENDUM SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.

ALLOWABLE SOIL PRESSURE 2500 PSF. ALL REQUIRED FILL AND BACKFILL SHALL BE COMPACTED TO AT LEAST (95%) OF THE MAXIMUM DENSITY OBTAINABLE BY THE ASTM DESIGNATION (D-1557-70T) METHOD OF COMPACTION.

CARRY ALL FOOTINGS A MINIMUM OF 18" INTO NATURAL GRADE OR APPROVED COMPACTED FILL. ACTUAL ELEVATION OF BOTTOM OF FOOTINGS SHALL BE AS DIRECTED BY THE SOILS ENGINEER DURING CONSTRUCTION.

ALL FOOTINGS SHALL BE INSPECTED BY THE BUILDING DEPARTMENT PRIOR TO POURING CONCRETE.

ALL WATER SHALL BE REMOVED FROM FOUNDATION EXCAVATIONS PRIOR TO POURING CONCRETE.

AT ALL POST TENSIONED FOUNDATIONS, SHOP DRAWING SHALL BE SUBMITTED FOR REVIEW BY THE BUILDING DEPARTMENT AND STRUCTURAL ENGINEER.

CAST IN PLACE CONCRETE

SCHEDULE OF STRUCTURAL CONCRETE 28 DAY STRENGTHS AND TYPES:

LOCATION IN STRUCTURE	STRENGTH (PSI)	TYPE
SLAB ON GRADE / FOOTINGS	4000 (U.N.O.)	HARDROCK
WALLS	4000 (U.N.O.)	HARDROCK

CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED. MIX DESIGN TO BE IN ACCORDANCE WITH CBC SECTION 1901.2 AND 1905.

PROVIDE SLICEOUS, NORMAL WEIGHT AGGREGATES OF NATURAL SAND AND ROCK CONSISTING OF SILICA OR COMPOUNDS OTHER THAN CALCIUM OR MAGNESIUM CARBONATE FOR HARDROCK CONCRETE. AGGREGATES ARE TO COMPLY WITH ASTM C33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN 0.05%.

PROVIDE LIGHT WEIGHT AGGREGATES CONSISTING OF EXPANDED SHALE FOR LT. WT. CONCRETE (110 PCF). AGGREGATES SHALL COMPLY WITH ASTM C330.

ALL REINFORCING STEEL, DOWELS, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN POSITION PRIOR TO POURING CONCRETE OR GROUT. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

ANCHOR BOLTS SHALL BE EMBEDDED INTO CONCRETE PER C.B.C. SECTION 1901.3 AND SECTION 1905 OR UNLESS NOTED OTHERWISE.

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT PLACED IN CAST-IN-PLACE CONCRETE: TOLERANCES SHALL BE AS PER AMERICAN CONCRETE INSTITUTE (ACI-318).

CAST AGAINST AND PERMANENTLY EXPOSED TO GROUND = 3"

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER
#6 THROUGH #18 BARS = 2"
#5 BARS W31 OR 031 WIRE, AND SMALLER = 1 1/2"

NOT EXPOSED TO WEATHER OR GROUND
#14 AND #18 BARS = 1 1/2"
#11 BAR AND SMALLER = 1"

BEAMS, COLUMNS AND WALL JAMBS PRIMARY REINFORCEMENT, TIES STIRRUPS, AND SPIRALS
#3 THROUGH @ 11 BARS = 1 1/2"
#14 AND #18 BARS = 2 1/2"

SLABS ON GRADE
#3 THORUGH #11 BARS = AT CENTER RESTING ON STIRRUPS IN PLACE PRIOR TO POUR

BARS PARALLEL TO COLD JOINTS
#3 THROUGH #11 BARS = 2

THE CONTRACTOR SHALL PLACE ALL CONCRETE IN COMPLIANCE WITH ACI 301 AND ACI 304.

SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER INDICATING LOCATIONS OF ALL CONCRETE CONSTRUCTION JOINTS FOR REVIEW PRIOR TO PLACING CONCRETE. LOCATE JOINTS AT LOCATIONS TO MINIMIZE THE EFFECTS OF SHRINKAGE AS WELL AS LOCATIONS OF MINIMUM SHEAR STRESS.

PROVIDE KEYS IN CONSTRUCTION JOINTS UNLESS DETAILED OTHERWISE. THOROUGHLY CLEAN, REMOVE ALL LAITANCE AND THOROUGHLY WET AND REMOVE STANDING WATER IN CONSTRUCTION JOINTS BEFORE PLACING NEW CONCRETE AT VERTICAL JOINTS SLUSH WITH A COAT OF NEAT CEMENT BEFORE PLACING NEW CONCRETE.

ALL CONCRETE SHALL BE MAINTAINED ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION A MINIMUM OF 7 DAYS AFTER PLACEMENT.

SLUMP IN CONCRETE USED FOR FLAT SURFACES SHALL NOT EXCEED 4 INCHES.

PROJECTING CORNERS OF COLUMNS, BEAMS, WALLS, ETC SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS NOTED OTHERWISE ON THE ARCHITECT'S DRAWINGS.

ELECTRICAL CONDUIT AND MECHANICAL PIPES IN EXCESS OF 1 INCH DIAMETER SHALL NOT BE EMBEDDED IN CONCRETE UNLESS DETAILED. CONDUIT AND PIPES LESS THAN 1 INCH IN DIAMETER MAY BE EMBEDDED IN SLAB ON GRADE, AND ELEVATED SLABS PROVIDED THE SPACING EXCEEDS 2 INCHES ON CENTER IN HORIZONTAL RUNS, AND ARE PLACED WITHIN THE MIDDLE ONE-THIRD OF THE SECTION DEPTH.

ALL PLUMBING PIPE PENETRATIONS TO BE PERPENDICULAR TO CONTINUOUS OR GRADE BEAM FOOTINGS (U.N.O.). IN ADDITION, PROVIDE SLEEVE TO ALL PLUMBING PIPES THAT PENETRATES CONTINUOUS OR GRADE BEAM FOOTINGS.

PROVIDE CORNER BARS IN ALL WALLS AND AT WALL INTERSECTIONS TO MATCH SIZE AND SPACING OF HORIZONTAL BARS ON THOSE WALLS.

LOCATION OF SLOTTED INSERTS, WELD PLATES AND ALL OTHER ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY NOTED ON THE DRAWING AS BEING WELDED. WELDED REINFORCING SHALL CONFORM TO ASTM A706.

ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL. ALL CONCRETE CONSTRUCTION PER INTERNATIONAL BUILDING CODE.

DIMENSIONS ARE NOT FURNISHED TO SIMPSON "HDA" OR "PA" TYPE HOLDOWNS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S SUPERINTENDENT. THE FRAMING CONTRACTOR AND THE CONCRETE CONTRACTOR TO LOCATE THE EXACT LOCATION REFER TO THE DETAILS AND MANUFACTURER'S SPECIFICATIONS FOR PROPER INSTALLATION.

COARSE AGGREGATE OR CONCRETE SHALL NOT CONTAIN LIGNITE, STEEL, OR OTHER MATERIALS THAT MAY BE DETRIMENTAL TO THE CONCRETE.

FLY ASH MAYBE SUBSTITUTED FOR A PORTION FOR THE CEMENT. A MAXIMUM OF 20% OF THE CEMENT MAY BE REPLACED BY FLY ASH WHEN REPLACEMENT IS USED THE REPLACED CEMENT SHALL BE SUBSTITUTED WITH ONE AND ONE HALF TIMES WITH FLY ASH, WATER CEMENT RATIOS SHALL BE BASED ON THE WATER/CEMENT FLY ASH RATIO.

MIX DESIGN SHALL NOT CONTAIN LESS THAN A WATER/CEMENT RATIO OF 0.28.

FOUNDATION (WIDTHS AND DEPTHS), AND REINFORCING AS SHOWN ON PLANS ARE SUPERSEDED BY LOCAL CODES OR ORDINANCES WHICH REQUIRE INCREASES OF THE SAME.

CONCRETE MIX AND STRENGTH f'c AT 28 DAYS, SHALL CONFORM TO THE FOLLOWING TABLE:

LOCATION	UNIT WEIGHT	F'c	MIN CEMENT	MAX W/C*	AIR ENTRAINMENT
SLAB ON GRADE	145 PCF	4000 PSI	470 LB/YD	0.45	3%
FOOTINGS	145 PCF	4000 PSI	470 LB/YD	0.45	3%

REFERENCE PER ACI 318-14 WHEN SOIL CONTAINS MORE THAN 0.1% SULFATE CONCENTRATION AS STATED IN THE GEOTECHNICAL REPORT.

IF STRENGTH DATA FROM FIELD EXPERIENCE OR TRIAL MIXTURES ARE NOT AVAILABLE, THE MAXIMUM W/C RATIO SHALL BE AS SPECIFIED IN ACI 318 TABLE(S) 4.2.1 AND 4.3.1.

ALL REINFORCING SHALL BE SUPPORTED IN CONFORMANCE WITH THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION (THE LATEST ADDITION).

REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR MISCELLANEOUS ITEMS TO BE CAST INTO CONCRETE AND MASONRY.

SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR SCORING AND FINISHES FOR CONCRETE SLABS AND STRUCTURAL CONCRETE.

INSPECTION IS REQUIRED FOR ALL CONCRETE 3000 PSI OR GREATER BY APPROVED SPECIAL INSPECTOR.

REINFORCING STEEL

PROVIDE REINFORCING STEEL COMPLYING WITH ASTM A615, GRADE 60. PROVIDE REINFORCING STEEL TO BE WELDED COMPLYING WITH ASTM A706, GRADE 60. FOR REINFORCING STEEL AT DUCTILE MOMENT FRAMES AND SHEAR WALLS, PROVIDE REINFORCING STEEL MEETING ASTM A706 AND ACTUAL YIELD STRENGTH BASED ON MILL TESTS NOT TO EXCEED SPECIFIED YIELD BY MORE THAN 18.000 PSI AND THE RATIO OF ACTUAL ULTIMATE TENSILE STRESS TO ACTUAL YIELD TENSILE STRESS SHALL NOT BE LESS THAN 1.25.

PROVIDE WELDED WIRE FABRIC COMPLYING WITH ASTM A82 AND A185. LAP WELDED WIRE FABRIC MINIMUM 1-1/2 SPACES OR 12 INCHES. PROVIDE DEFORMED WIRE STIRRUPS COMPLYING WITH ASTM A496 AND A497.

ALL BARS SHALL BE FREE OF LOOSE AND FLAKY RUST AND SCALE, GREASE OR OTHER MATERIALS WHICH MIGHT AFFECT OR IMPAIR BOND.

LAP REINFORCING STEEL AT SPLICES, AT WELL STAGGERED LOCATIONS AND TO THE FOLLOWING MINIMUM LENGTHS UNLESS NOTED OTHERWISE:

#3 AND #4	2'-0"	#8	5'-3"
#5	2'-6"	#9	6'-9"
#6	3'-0"	#10	8'-6"
#7	4'-3"	#11	10'-6"

SPLICE REINFORCING STEEL WHERE INDICATED PER PLAN.

ALL REINFORCING SHALL BE SECURELY TIED AND BRACED IN PLACE PRIOR TO PLACING CONCRETE.

MINIMUM CLEAR DISTANCES BETWEEN BARS INCLUDING AREAS AT SPLICES SHALL BE 1 INCH OR 1 BAR DIAMETER, WHICHEVER IS GREATER. MINIMUM CLEAR DISTANCE AT COLUMNS SHALL BE 1-1/2 INCHES OR 1-1/2 BAR DIAMETERS, WHICHEVER IS GREATER.

DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME SIZE, GRADE, SPACING AND NUMBER AS THE SPECIFIED VERTICAL REINFORCING AND SHALL LAP AS NOTED ABOVE, UNLESS NOTED OTHERWISE.

WELDING OR REINFORCING STEEL SHALL ONLY OCCUR WITH ASTM A706 BARS AND USING E-90XX LOW HYDROGEN ELECTRODES COMPLYING WITH ANSI/AWS D1.4.

ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

SUBMIT SHOP DRAWINGS TO ARCHITECT INDICATING REINFORCING PLACEMENT FOR REVIEW PRIOR TO FABRICATION. PREPARE SHOP DRAWINGS IN CONFORMANCE WITH ACI 315.

ABREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
BAR	REINFORCING BAR
BD	BOARD
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BN	BOUNDARY NAIL
BOB	BOTTOM OF BEAM
BW	BOTH WAYS
CF	CONTINOUS FOOTING
CIDH	CAST-IN DRILLED HOLE
CJ	CEILING JOIST
CL	CENTERLINE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINOUS
CPE	CONT PANEL EDGES
D	DEPTH
DBL	DOUBLE
DF	DOUGLAS FIR
DIA	DIAMETER
DO	DITTO
(E)	EXISTING
EJ	EXPANSION JOINT
EN	EDGE NAIL
EQ	EQUAL
EW	EACH WAY
FB	FLOOR BEAM
FG	FINISH GRADE
FJ	FLOOR JOIST
FLR	FLOOR
FMG	FRAMING
FN	FIELD NAIL
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FP	FULL PENETRATION
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GLB	GLUE-LAMINATED BEAM
GR BM	GRADE BEAM
GWB	GYPSUM WALLBOARD
GT	GIRDER TRUSS
H	HIGH
HDR	HEADER
HGT	HEIGHT
HGR	HANGER
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL STEEL
HT	HIP TRUSS
KP	KING POST
L	LOW
LT WT	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER

ABREVIATIONS

RF	ROOF
RJ	ROOF JOIST
RR	ROOF RAFTER
RT	ROOF TRUSSES
SIM	SIMILAR
SIMP	SIMPSON PRODUCT
SM	SHEAR MAX
SMS	SHEET METAL SCREW
SQ	SQUARE
SS	SELECT STRUCTURAL
SSW	SIMPSON STRONG WALL
STD	STANDARD
STL	STEEL
SW	SHEAR WALL
THK	THICK
THRD	THREADED
TN	TOE NAIL
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOL	TOP OF LEDGER
TOM	TOP OF MASONRY
TOP	TOP OF PLYWOOD
TOS	TOP OF SHEATHING
TOW	TOP OF WALL
TSG	TAPPERED STEEL GIRDER
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W	WIDTH OF FOOTING
W/	WITH
WF	WIDE FLANGE
WP	WEAKENED PLANE JOINT
WWF	WELDED WIRE FABRIC
DIA Ø	DIAMETER
@	AT
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MI	MALLEABLE IRON
MIN	MINIMUM
MLB	MICRO LAM BEAM
(N)	NEW
NG	NATURAL GRADE
O/	OVER
OC	ON CENTER
PJ	POUR JOINT
PLB	PARALLAM BEAM
PLWD	PLYWOOD
PT	PRESSURE TREATED
RB	ROOF BEAM
REINF	REINFORCING
REQ'D	REQUIRED

CONTRACTORS RESPONSIBILITY

EACH CONTRACTOR OR SUB-CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF THE WIND AND/OR SEISMIC RESISTING SYSTEM THAT IS LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK REQUIRING SPECIAL INSPECTION. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

1. ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
2. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
3. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS.
4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

NOTE
ALL NOTES ON THIS SHEET SHALL APPLY TO EACH SHEET OF THIS SET OF STRUCTURAL DRAWINGS

STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS (LATEST EDITION), ALL COLUMN AND DOUBLER PLATES SHALL CONFORM TO ASTM A-572, GRADE 50, FY-50 KSI, AND THE FOLLOWING ASTM STANDARD SPECIFICATIONS, UNLESS NOTED OTHERWISE.
ALL STRUCTURAL STEEL UNLESS NOTED BELOW = ASTM A992 (50 KSI)
PIPES = ASTM A500, GRADE B (42 KSI)
TUBES = ASTM A500, GRADE B (46 KSI)
ANCHOR BOLTS AND UNFINISHED BOLTS = ASTM A307 U.N.O.
THREADED ROUND STOCK = ASTM A36
HIGH STRENGTH BOLTS = SEE NOTE BELOW

MILL CERTIFICATES SHALL ACCOMPANY ALL STRUCTURAL STEEL. ALL STRUCTURAL STEEL SHALL BE IDENTIFIABLE IN THE FIELD WITH THE CORRESPONDING MILL CERTIFICATES.

ALL BOLTS SHALL BE UNFINISHED, CONFORMING TO ASTM A307 OF SIZES SHOWN ON DRAWINGS, UNLESS NOTED OTHERWISE.

HIGH STRENGTH BOLTS:
PROVIDE HIGH STRENGTH BOLTS, NUTS AND WASHERS COMPLYING WITH ASTM A325.
ALL HIGH STRENGTH BOLTS SHALL BE SLIP-CRITICAL HIGH STRENGTH BOLTS (A325-SC) UNLESS NOTED OTHERWISE.
ASSEMBLE HIGH STRENGTH BOLTS IN COMPLIANCE WITH THE SPECIFICATION OF STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
TIGHTEN A325-N BOLTS TO A SMUG TIGHT CONDITION. TIGHTEN A325-SC BOLTS TO AT LEAST THE MINIMUM PROPER TENSION USING ONE OF THE FOLLOWING TIGHTENING METHODS: TURN-OF-NUT, CALIBRATED WRENCH OR DIRECT TENSION INDICATOR TIGHTENING.

HEADED STUD ANCHORS SHALL BE MANUFACTURED FROM C1015, C1017, OR C1020 COLD DRAWN STEEL CONFORMING TO ASTM A108 (58 KSI). STUD SIZE SHALL BE AS NOTED ON PLANS.

SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. INDICATE A WELDING PROCEDURE FOR DUCTILE MOMENT FRAMES INCLUDING THE SEQUENCE OF WELDING AT GIRDER TO COLUMN AND COLUMN TO BASE PLATE CONNECTIONS AND COLUMN SPLICES AS WELL AS THE SEQUENCE OF WELDING WITHIN EACH FRAME. SHOP DRAWINGS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF DESIGN INTENT (MINIMUM OF 10 WORKING DAYS) ALSO SEE NEXT 3 NOTES BELOW.

A WELDING PROCEDURE SPECIFICATION (W.P.M.) PER A.W.S D1.1 SHALL BE DEVELOPED BY THE FABRICATOR/ERECTOR AND APPROVED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE W.P.M. SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.

COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS AVERAGE AT 70 DEGREES FAHRENHEIT.

WELD STRUCTURAL STEEL IN COMPLIANCE WITH AWS D1.1-10. WELDERS SHALL BE CERTIFIED AS REQUIRED BY THE GOVERNING CODE AUTHORITY. WELDING SHALL BE DONE BY THE ELECTRIC ARCH PROCESS USING APPROVED COATED RODS. WELDING MAYBE PERFORMED USING THE SUBMERGED ARC PROCESS WITH AUTOMATIC WELDING (SAW-1). USE E-90xx LOW HYDROGEN ELECTRODES FOR WELDING OF REINFORCING STEEL. PERFORM SHOP WELDING BY AN APPROVED FABRICATOR.

BUILDING STRUCTURAL STEEL IS DESIGNED FOR UNSHORED CONSTRUCTION UNLESS NOTED OTHERWISE.

CAMBER STRUCTURAL STEEL BEAMS AND GIRDERS SUPPORTING FLOOR LOADS WITH SPANS GREATER THAN 15'-0" L/360 UNLESS NOTED OTHERWISE. DO NOT CAMBER MEMBERS BELOW ELEVATOR ENTRANCE DOORS.

UNLESS A LARGER SIZE FILLET WELD IS INDICATED, PROVIDE MINIMUM SIZE OF WELD PER AISC. WELD LENGTHS INDICATED ARE THE NET EFFECTIVE LENGTH REQUIRED.

FIELD CUTTING OR BURNING OF STRUCTURAL STEEL IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED IS PROHIBITED WITHOUT PRIOR APPROVAL. IF APPROVED, THE CONTRACTOR SHALL HAVE THE CONNECTION TESTED BY ULTRASONIC TESTING METHOD BY AN INDEPENDENT TESTING LAB.

AS REQUIRED APPLY SPRAYED FIREPROOFING OVER STRUCTURAL STEEL WITH MONOKOTE MK6/CBF OR MK/ED AS MANUFACTURED BY W.R. GRACE AND COMPANY AS APPROVED BY ICC EVALUATION REPORT NO. 4607. OBTAIN APPROVAL FOR SUBSTITUTE PRODUCTS AS INDICATED IN GENERAL SECTION. HOURLY FIRE RESISTIVE REQUIREMENTS SHALL BE DETERMINED USING TABLE 17.A OF THE CBC AND BUILDING TYPES OF CONSTRUCTION AS INDICATED ON ARCHITECTURAL DRAWINGS.

WHERE EXPOSED STEEL SURFACES ARE EXPOSED TO VIEW IN THE FINISHED WORK. USE ONLY MATERIALS THAT ARE SMOOTH AND FREE FROM SURFACE BLEMISHES. REMOVE SUCH BLEMISHES BY GRINDING OR WELDING AND GRINDING PRIOR TO CLEANING AND APPLICATION OF FINISHES.

SHOP PRIME ALL STRUCTURAL STEEL, EXCEPT AT CONNECTION LOCATIONS, AND STEEL WHICH REQUIRES FIREPROOFING. FOR THE PROTECTION OF EXPOSED STRUCTURAL STEEL SEE ARCHITECTURAL DRAWINGS.

BOLT HOLES IN STEEL, SHALL BE 1/16 INCH LARGER IN DIAMETER THAN THE NORMAL SIZE OF THE BOLT USED EXCEPT AS NOTED.

FABRICATOR SHALL REVIEW THE WELDING PROCESS AND MATERIALS TO ENSURE CONFORMANCE WITH THE LATEST SAC/FEMA GUIDELINES AND RECOMMENDATIONS.

MINIMUM NOMINAL TENSILE STRENGTH OF WELD METAL SHALL BE 70 KSI.

STRUCTURAL STEEL CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND COORDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS IN CASE OF CONFLICTS THE ARCHITECT / ENGINEER IS TO BE NOTIFIED.

ALL GROUT UNDER STEEL BEARING PLATES SHALL BE SOLID DRYPACK OR NON-SHRINK GROUT PLACED AS DIRECTED BY THE MANUFACTURER (F'c = 4,000 PSI MIN). SPECIAL INSPECTION REQUIRED.

ALL COMPLETE PENETRATION GROOVE WELDS EMPLOYED FOR THE ORDINARY MOMENT FRAME FULLY RESTRAINED CONNECTIONS BE TESTED 100 PERCENT BY ULTRASONIC TESTING OR BY RADIOGRAPHY CBC CHAPTER 17.

CONTINUOUS INSPECTION REQUIRED FOR ALL FIELD WELDING BY APPROVED SPECIAL INSPECTOR.

BLOCK MASONRY

ALL MASONRY CONSTRUCTION PER 2013 CALIFORNIA BUILDING CODE.

REINFORCED BLOCK MASONRY: ASSUMED DESIGN STRENGTH F'm=1500 PSI.

UNITS SHALL BE NORMAL WEIGHT (OR LIGHTER) CONCRETE BLOCK, GRADE N, CONFORMING TO ASTM C90 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI.

GROUT SHALL BE OF FLUID CONSISTENCY, GROUT MIX SHALL BE (BY VOLUME) 1 PART CEMENT, 3 PARTS SAND (FINE GROUT) AND MAY CONTAIN AN ADDITIONAL 2 PARTS PEA GRAVEL IF SPACES ARE 4 INCHES OR MORE IN EVERY DIRECTION (COARSE GROUT). F'c=2,000 PSI AT 28 DAYS.

MORTAR SHALL BE TYPE S, (BY VOLUME) 1 PART PORTLAND CEMENT, 3 1/2 PARTS SAND, 1/4 TO 1/2 PARTS LIME PUTTY OR HYDRATED LIME. F'c=2,000 PSI AT 28 DAYS.

REINFORCING SHALL HAVE A MINIMUM LAP OF 48 BAR DIAMETERS OR 2"-6" WHICH EVER IS LARGER, UNLESS NOTED OTHERWISE. ALL REINFORCING SHALL HAVE A MINIMUM COVERAGE OF 1/2" GROUT.

ALL BLOCK WALLS TO BE RUNNING BOND, UNLESS NOTED OTHERWISE.

BRICK SHALL CONFORM TO THE STANDARD SPECIFICATION FOR BUILDING BRICK ASTM C62, BRICK GROUTING PER T21-2413.

PROVIDE CLEANOUT OPENINGS AT THE BOTTOM OF ALL VERTICALLY GROUTED CELLS IF GROUT LIFT EXCEED 4'-0".

ALL MASONRY SHALL BE REINFORCED GROUTED MASONRY WITH CELLS CONTAINING REINFORCING TO BE GROUTED UNLESS OTHERWISE NOTED AND IN MASONRY WALLS NOT CONTINUOUS TO FOOTINGS.

BOLTS SHALL BE GROUTED WITH 1" OF GROUT BETWEEN BOLT AND MASONRY.

NO PIPES OR DUCTS SHALL BE PLACED IN MASONRY WALLS UNLESS SPECIFICALLY NOTED OR DETAILED.

STRUCTURAL OBSERVATION

STRUCTURAL OBSERVATION IS REQUIRED IN ACCORDANCE W/ SECTION 1704.6 OF THE 2016 CALIFORNIA BUILDING CODE. STRUCTURAL OBSERVATION SHALL BE REQUIRED ON FOUNDATIONS PRIOR TO POUR & ON ROOF & WALL SHEATING PRIOR TO COVERING BY A CALIFORNIA LICENSED CIVIL AND/OR STRUCTURAL ENGINEER.

REQUIRED SPECIAL INSPECTIONS

IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING CHECKED ITEMS WILL ALSO REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH SEC. 1709 OF THE INTERNATIONAL BUILDING CODE & SEC 1704 & 1705 OF THE CBC

ITEM	REQUIRED?	REMARKS
SOILS COMPLIANCE PRIOR TO FOUNDATION INSPECTION	YES	SEE SOILS REPORT
STRUCTURAL CONCRETE OVER 2,500 PSI	YES	4000 PSI
FIELD WELDING	YES	
SEE SHEET S-1.1 FOR ADDITIONAL INFORMATION		

TESTS AND INSPECTIONS

1. PROVIDE ALL STRUCTURAL MATERIAL FROM TESTED STOCK, FURNISH COPIES OF TEST REPORTS TO ARCHITECT & GOVERNING CODE AUTHORITY UPON REQUEST.
2. SEE TABLE(S) ON SHEET S-1.1 FOR TEST AND INSPECTION REQUIREMENTS.
3. THE USE OF ROLLED STEEL SECTIONS, BOLTS, & OR REBAR MANUFACTURED OUTSIDE THE UNITED STATES WILL REQUIRE VERIFICATION THAT THE PRODUCTS COMPLY WITH APPLICABLE ASTM STANDARD. FOREIGN STEEL WILL REQUIRE MILL CERTIFICATES, & REPRESENTATIVE TESTING BY AGENCIES APPROVED BY THE GOVERNING CODE AUTHORITY TO DEMONSTRATE COMPLIANCE. ALL FOREIGN BOLTS & CONNECTORS SHALL BE APPROVED BY THE GOVERNING CODE AUTHORITY.
4. A TESTING LABORATORY SHALL PROVIDE CONTINUOUS INSPECTION, COMPLYING WITH CHAPTER 17 OF THE 2016 CBC FOR THE FOLLOWING:
   A. FIELD WELDING
   B. CONCRETE & REINFORCING STEEL WHEN SPECIFIED COMPRESSIVE STRENGTH EXCEEDS 2500 PSI
   C. BOLTS INSTALLED IN CONCRETE
5. SEE SHEET S-1.1 FOR ADDITIONAL INFORMATION.

DESIGN DATA

1. EARTHQUAKE DESIGN DATA:

   SEISMIC METHOD = ANALYTICAL
   SEISMIC IMPORTANCE FACTOR I = 1.00
   OCCUPANCY CATEGORY = II
   S_S = 0.534
   S_1 = 0.252
   S_{DS} = 0.423
   SEISMIC DESIGN CATEGORY = C
   BASIC SEISMIC-FORCE-RESISTING SYSTEM(S) = EQUIPMENT FORCES
   SEISMIC RESPONSE COEFFICIENT(S) CS = 0.169
   RESPONSE MODIFICATION FACTOR(S) R = 2.5
   ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
   DESIGN BASE SHEAR = ASD

2. WIND DESIGN DATA:

   WIND DESIGN METHOD = METHOD 2
   BASIC WIND SPEED = 110 mph
   WIND IMPORTANCE FACTOR I = 1.00
   OCCUPANCY CATEGORY = II
   ENCLOSURE CLASSIFICATION = OPEN STRUCTURE
   WIND EXPOSURE = C
   INTERNAL PRESSURE COEFFICIENT GCpi = N/A
   WIND DESIGN LOAD = 18.0 psf
   COMPONENTS AND CLADDING DESIGN LOAD = N/A

3. FLOOD DESIGN DATA: NOT REQUIRED
4. SPECIAL LOADS: NOT APPLICABLE
5. SYSTEMS AND COMPONENTS REQUIRING SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE: SEE TABLE(S) ON SHEET S-1.1.

NO.#	REMARKS	DATE

B.G. STRUCTURAL ENGINEERING, INC.
LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
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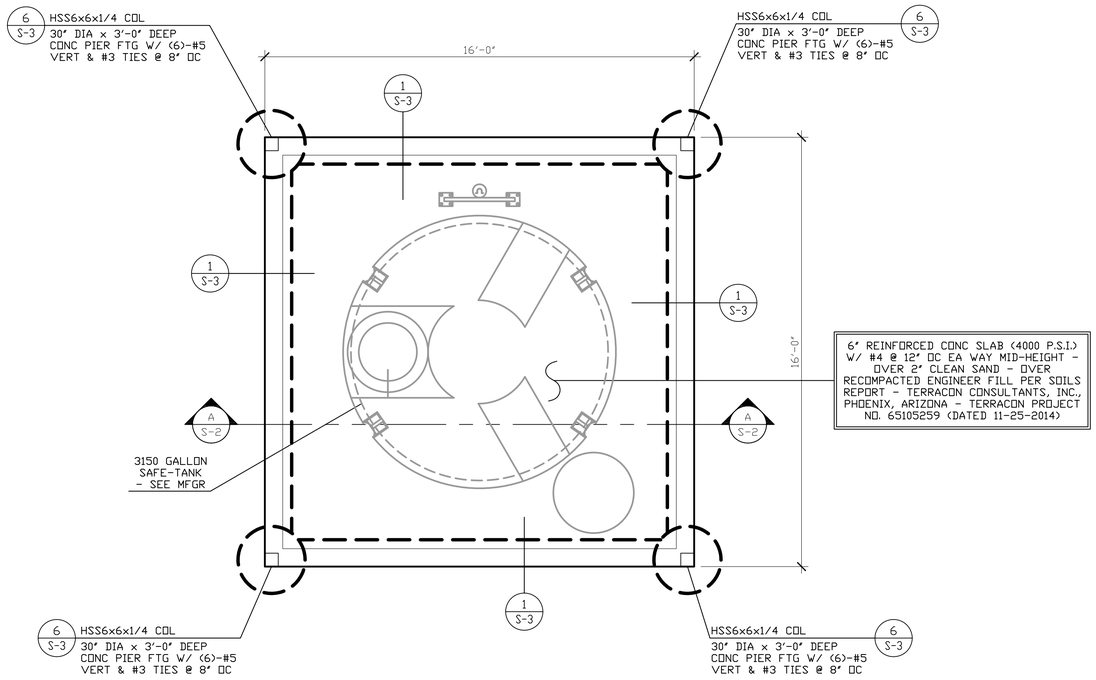
GENERAL NOTES

GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT
11995 Wiley's Well Road
Blythe, CA. 92225

DRAWN BY:	SC
DATE	01/22/18
SCALE	N.T.S.
JOB NO.	800.0118
SHEET	6

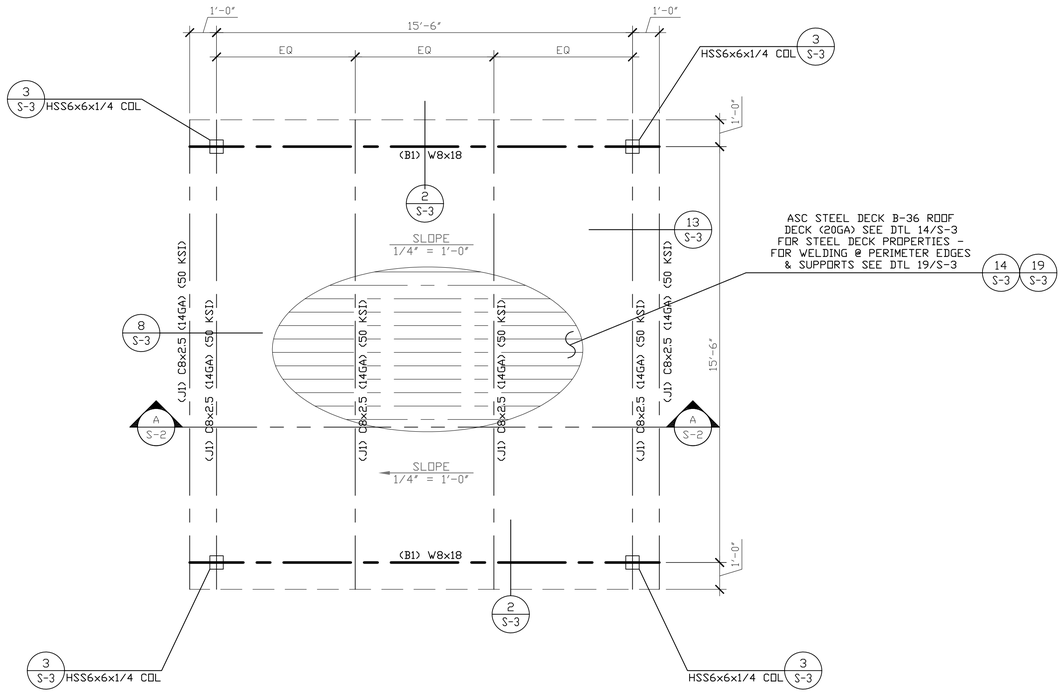
S-1

OF 9 SHEETS



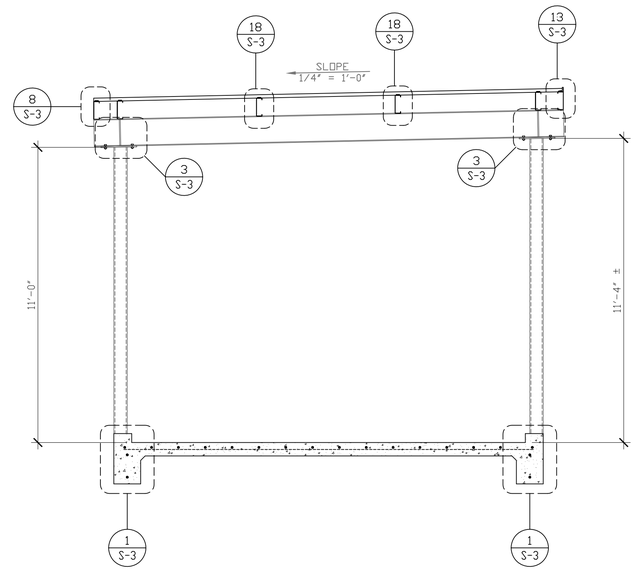
NEXTERA AMMONIA STORAGE TANK STRUCTURE – FOUNDATION PLAN

SCALE: 3/8" = 1'–0"



NEXTERA AMMONIA STORAGE TANK STRUCTURE – FRAMING PLAN

SCALE: 3/8" = 1'–0"



NEXTERA AMMONIA STORAGE TANK STRUCTURE – SECTION A

SCALE: 3/8" = 1'–0"

"SOILS COMPACTION TEST AND APPROVAL REQUIRED BY SOILS ENGINEER AFTER FOUNDATION EXCAVATION AND CERTIFICATE OF ACCEPTANCE SHALL BE READY AT TIME OF FOUNDATION INSPECTION. THIS IS TO BE PROVIDED FOR ANY FOUNDATION WORK AT THE REQUEST OF THE INSPECTOR."

FIELD VERIFY ALL EXISTING DIMENSIONS & CONDITIONS

ROOF LOADS

DEAD LOAD

FLAT ROOF 6.0 P.S.F.

LIVE LOAD

ROOF 20.0 P.S.F.

FOUNDATION NOTES

1. SEE SHEET S-1, S-1.1 AND S-1.2 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. DIMENSIONS ARE TO CENTER LINE OR FACE OF FOOTINGS, SEE OTHER PLANS FOR LOCATIONS OF POSTS, WALLS AND ETC. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH THE OWNER AND ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
3. ALL CONTINUOUS FOOTINGS SHALL EXTEND A DISTANCE EQUAL TO THE FOOTING DEPTH BEYOND THE END OF THE STUD WALL, UNLESS NOTED OTHERWISE. NO EXTENSION IS REQUIRED WHERE CONTINUOUS FOOTINGS CHANGE DIRECTION, UNLESS NOTED OTHERWISE.
4. VERIFY LOCATIONS OF ALL UNDERGROUND CONDUITS WITH THE ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS.
5. WRITTEN VERIFICATION FROM SOILS ENGINEER THAT HE HAS REVIEWED FOUNDATION PLANS AND DETAILS FOR CONFORMANCE WITH SOILS REPORT SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT.
6. SOILS ENGINEER SHALL BE RETAINED TO OBSERVE ALL GRADING, EXCAVATION, COMPACTION AND FOUNDATION CONSTRUCTION PROCEDURES.
7. PAD PREPARATION AND SOIL COMPACTION IF ANY REQUIRED SHALL BE DONE PER THE SOILS REPORT RECOMMENDATIONS.
8. ALL WELDING TO BE DONE IN A BUILDING DEPARTMENT APPROVED SHOP. IF FIELD WELDING IS REQUIRED, APPROVAL TO BE BY ARCHITECT OR STRUCTURAL ENGINEER - SPECIAL INSPECTION PROVIDED BY OWNER IS REQUIRED FOR ALL FIELD WELDING.
9. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
10. SOILS ENGINEER TO REVIEW AND APPROVE ALL FOUNDATIONS AND FOUNDATION DETAILS PER FINAL SOILS REPORT PRIOR TO ISSUANCE OF PERMIT.
11. DRYPACK SHALL BE IN PLACE & SUBJECT TO INSPECTION PRIOR TO POURING THE GRADE BEAM / SLAB.
12. PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION, THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL, IN WRITING, THAT:
    A) THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT
    B) THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED, AND
    C) THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT
13. ADDITIONAL TESTS AS PROOF OF COMPLIANCE MAY BE REQUIRED BY THE BUILDING OFFICIAL TO BE MADE AT NO EXPENSE TO THE JURISDICTION.

FRAMING NOTES

1. SEE SHEET S-1, S-1.1 AND S-1.2 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. PROVIDE STRIPPING WHERE REQUIRED TO PROVIDE A UNIFORM SURFACE WHERE FLUSH JOIST AND BEAMS ARE DIFFERENT DEPTH.
3. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL STEEL AND GLU-LAM BEAMS FOR ENGINEER'S REVIEW PRIOR TO FABRICATION.
4. ALL FIELD WELDING SHALL BE DONE BY CERTIFIED WELDERS UNDER THE OBSERVATION OF AN APPROVED SPECIAL INSPECTOR. SUCH INSPECTOR SHALL SUBMIT HIS/HER CREDENTIALS FOR REVIEW OF APPROVAL BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY PRIOR TO REPORTING TO THE JOBSITE.
5. ALL CONNECTORS TO BE "SIMPSON" OR APPROVED EQUAL (UND).
6. ALL SHOP WELDING SHALL BE DONE BY A FABRICATOR APPROVED BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY PER CBC CHAPTER 17. IN LIEU OF FABRICATOR APPROVAL, THE OWNER MAY EMPLOY A SPECIAL INSPECTOR, WHICH IS TO BE APPROVED BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY, WHO WILL INSPECT ALL PHASES OF SHOP WELDING DURING SUCH TIMES THE WELDING IS TAKING PLACE. THE FABRICATOR OR SPECIAL INSPECTOR SHALL SUBMIT THEIR CREDENTIALS FOR REVIEW AND APPROVAL BY THE DEPARTMENT OF BUILDING & SAFETY PRIOR TO THE START OF FABRICATION OR INSPECTION.

NO.#	REMARKS	DATE

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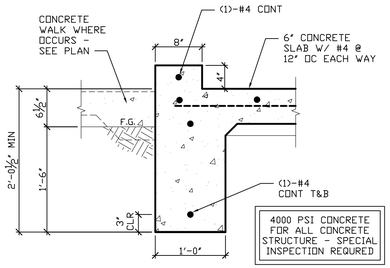
FOUNDATION & FRAMING PLAN

GENESIS SOLAR ENERGY PLANT AMMONIA SYSTEM IMPROVEMENT PROJECT
11995 Wiley's Well Road
Blythe, CA. 92225

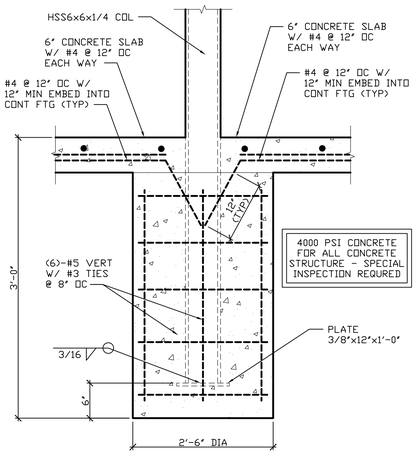
DRAWN BY:	SC
DATE	01/22/18
SCALE	AS NOTED
JOB NO.	800.0118
SHEET	7

S-2

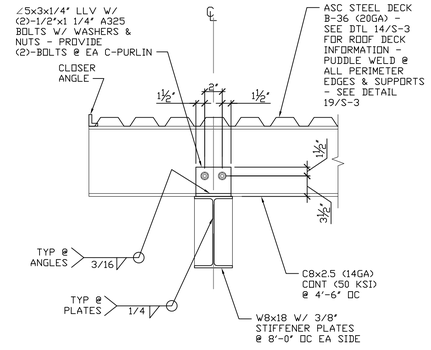
OF 9 SHEETS



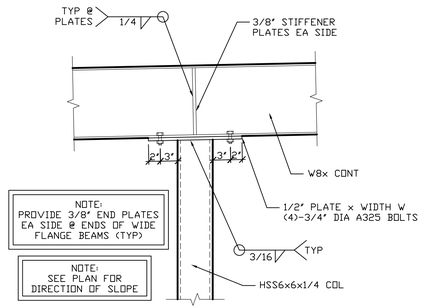
1 S-3 FOUNDATION DETAIL



6 S-3 FOUNDATION DETAIL

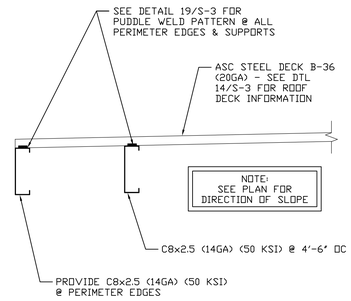


2 S-3 FRAMING DETAIL



3 S-3 FRAMING DETAIL

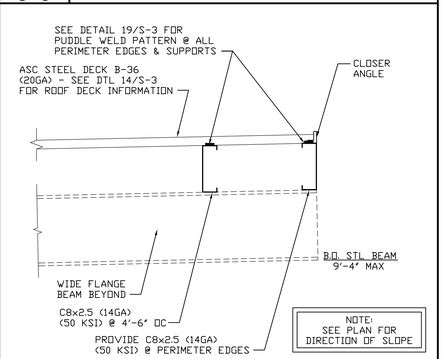
7 S-3 NOT USED



8 S-3 FRAMING DETAIL

11 S-3 NOT USED

12 S-3 NOT USED

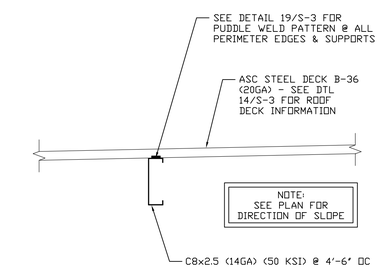


13 S-3 FRAMING DETAIL

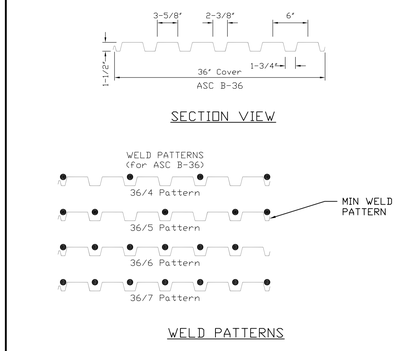
14 S-3 FRAMING DETAIL

16 S-3 NOT USED

17 S-3 NOT USED



18 S-3 FRAMING DETAIL

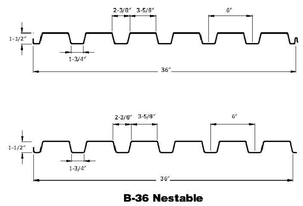


19 S-3 FRAMING DETAIL

20 S-3 BG DISCLAIMER

ASC Steel Deck

B-36 Roof Deck



The **B-36 profile** has been enhanced via physical testing to give you the highest diaphragm shear values of any of our prior B-series profiles.

Note: B 35 1/4" – Sacramento

B-36 Section Properties

Gauge	Weight (psf)	I (In4)	S+ (In3)	S– (In3)
22	1.68	0.178	0.18	0.195
20	2.04	0.22	0.235	0.246
18	2.7	0.302	0.321	0.336
16	3.36	0.379	0.407	0.415

1. Section properties are based on minimum 38 ksi steel (Fy).

B-36 Allowable Reactions (plf)

Gauge	Bearing Length 1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
22	416	468	520	572	625	677	729
	1007	1103	1213	1363	1513	1663	1813
20	700	776	853	929	1005	1082	1158
	1495	1617	1739	1897	2088	2280	2472
18	1443	1568	1693	1818	1943	2068	2193
	2734	2909	3084	3258	3436	3710	3985
16	2434	2608	2782	2957	3131	3305	3480
	4350	4578	4806	5034	5262	5490	5786

1. The top value reflects the allowable reaction at the panel end supports.
2. The bottom value reflects the allowable reaction at the interior supports.
3. Values are in pounds per linear foot.

B-36 Allowable Total (DL + LL) Uniform Load (psf)

Span Condition	Gauge		Span 5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	8'6"	9'0"	9'6"	10'0"
SINGLE SPAN	22	Stress	109	90	76	65	56	49	43	38	34	30	27
		Deflection	93	70	54	42	34	28	23	19	16	14	12
	20	Stress	143	118	99	85	73	64	56	49	44	40	36
		Deflection	115	87	67	53	42	34	28	23	20	17	14
	18	Stress	195	161	136	115	100	87	76	68	60	54	49
		Deflection	158	119	92	72	58	47	39	32	27	23	20
	16	Stress	247	205	172	146	126	110	97	86	76	69	62
		Deflection	199	149	115	90	72	59	49	40	34	29	25
DOUBLE SPAN	22	Stress	119	98	82	70	60	53	46	41	37	33	30
		Deflection	119	98	82	70	60	53	46	41	37	33	28
	20	Stress	150	124	104	89	76	66	58	52	46	41	37
		Deflection	150	124	104	89	76	66	58	52	46	41	35
	18	Stress	204	169	142	121	104	91	80	71	63	57	51
		Deflection	204	169	142	121	104	91	80	71	63	56	48
	16	Stress	252	209	175	149	129	112	99	87	78	70	63
		Deflection	252	209	175	149	129	112	99	87	78	70	60
TRIPLE SPAN	22	Stress	148	122	103	88	76	66	58	51	46	41	37
		Deflection	148	122	102	80	64	52	43	36	30	26	22
	20	Stress	187	155	130	111	95	83	73	65	58	52	47
		Deflection	187	155	126	99	79	65	53	44	37	32	27
	18	Stress	255	211	177	151	130	113	100	88	79	71	64
		Deflection	255	211	173	136	109	89	73	61	51	44	37
	16	Stress	315	261	219	187	161	140	123	109	97	87	79
		Deflection	315	261	217	171	137	111	92	76	64	55	47

1. Stress based on allowable flexural stress of 22.8 ksi.
2. Deflection based on maximum deflection of L/240.
3. Adequate bearing must be provided.
4. See page 31 for General Notes.

ASC STEEL DECK INFORMATION SHEET

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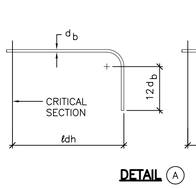
S-3

OF 9 SHEETS

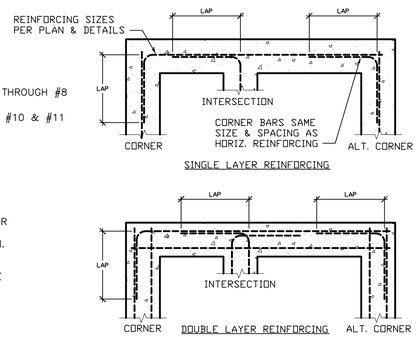
REBAR SPLICE AND EMBED LENGTH SCHEDULE

BAR #	CONC. f'c = 2500 PSI						
	LAP SPLICE LENGTHS			DEVELOPMENT LENGTH			
	COLUMNS	TOP BAR	OTHER	COLUMNS	TOP BAR	OTHER	STANDARD HOOKS ℓdh
3	12"	21"	16"	8"	16"	12"	6"
4	12"	27"	21"	8"	21"	16"	8"
5	21"	51"	39"	15"	39"	30"	11"
6	25"	61"	47"	18"	47"	36"	13"
7	30"	89"	69"	21"	69"	53"	15"
8	34"	102"	78"	24"	78"	60"	17"
9	38"	115"	88"	27"	88"	68"	19"
10	43"	129"	99"	31"	99"	77"	22"
11	47"	143"	110"	34"	110"	85"	24"

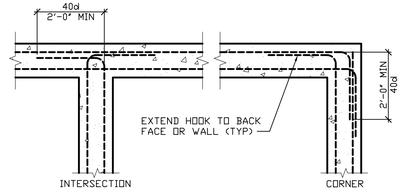
NOTES:
1. LAP SPLICES IN BEAMS ARE NOT PERMITTED WITHIN JOINTS, NOR WITHIN A DISTANCE OF TWICE THE MEMBER DEPTH FROM THE FACE OF THE JOINT, NOR AT CENTER 1/3 OF BEAM SPAN FOR BOTTOM REINFORCING, NOR AT END 1/3 OF BEAM SPAN FOR TOP REINFORCING.
2. LAP SPLICES IN BEAMS SHALL BE PERMITTED ONLY IF HOOP REINFORCEMENT IS PROVIDED AT A MAXIMUM SPACING OF 4" O/C ALONG THE LAP LENGTH.
3. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED IN COMPRESSION, SPLICE LENGTH SHALL BE OF THE DEVELOPMENT LENGTH OF LARGER BAR OR SPLICE LENGTH OF SMALLER BAR.
4. COLUMN LAP SPLICE LENGTH SPECIFIED IS WHERE TIES ARE USED THROUGHOUT THE LAP SPLICE LENGTH. FOR OTHER CONDITIONS USE 30db AS THE COLUMN LAP SPLICE LENGTH.
5. LENGTHS SHOWN ARE FOR HOOKS WITH SIDE COVER (NORMAL TO PLANE OF HOOK) NOT LESS THAN 2-1/2" AND FOR 90° HOOK, COVER ON BAR EXTENSION BEYOND HOOK NOT LESS THAN 2". FOR OTHER CONDITIONS MULTIPLY ABOVE STANDARD HOOK DEVELOPMENT LENGTH BY 1.43.
6. SPLICE AND EMBEDMENT LENGTHS ARE IN INCHES. SPLICES SHALL BE CLASS "B".
7. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" CONCRETE BELOW, OTHER BARS ARE BOTTOM OR VERTICAL BARS. WHERE REQUIRED EMBEDMENT CANNOT BE OBTAINED WITH STRAIGHT BARS, PROVIDE 180° OR 90° HOOK EQUALING LENGTH BELOW. SCHEDULE IS FOR GRADE 60 BARS EXCEPT #3 AND #4 WHICH ARE FOR GRADE 40 BARS.



DETAIL (A)

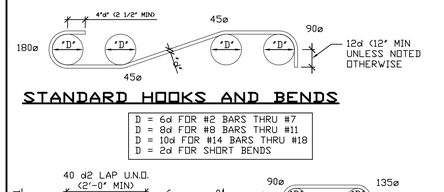


REINFORCING LAYOUT



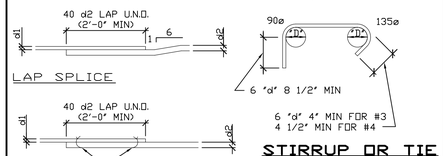
NOTE:
1. WHERE SINGLE LAYER OF REINF OCCURS, BEND REINF AS SHOWN FOR OUTSIDE BARS.
2. DETAIL APPLIES TO FOOTINGS, BEAMS AND CONCRETE WALLS
3. d = BAR DIAMETER

TYP REINFORCING AT INTERSECTION



STANDARD HOOKS AND BENDS

D = 6d FOR #2 BARS THRU #7
D = 8d FOR #8 BARS THRU #11
D = 10d FOR #14 BARS THRU #18
D = 2d FOR SHORT BENDS

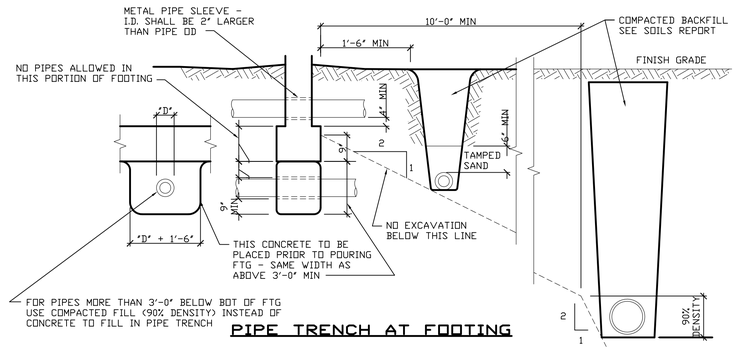


STIRRUP OR TIE

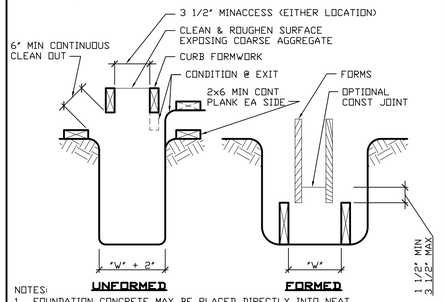
OFFSETS AND SPLICES

1 S-1.1 GENERAL DETAIL

5 S-1.1 GENERAL DETAIL



PIPE TRENCH AT FOOTING



UNFORMED FORMED

NOTES:
1. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS, PROVIDED THE FOUNDATION TRENCH WALLS ARE STABLE AS DETERMINED BY THE STRUCTURAL ENGINEER & APPROVED BY O.S.A.
2. FORMWORK NOT PERMITTED BELOW GRADE UNLESS FOOTING AND WALL ARE FULLY FORMED.
3. STAKES NOT PERMITTED WITHIN FOOTING SECTION.

8 S-1.1 GENERAL DETAIL

10 S-1.1 GENERAL DETAIL

(CBC 2016) TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	–	X	ACI 318: Ch. 20, 25.2 25.3, 26.5.1–26.5.3	1908.4
2. REINFORCING BAR WELDING:				
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	–	X	AWS D1.4	–
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND	–	X	ACI 318: 26.5.4	
c. INSPECT ALL OTHER WELDS.	X			
3. VERIFYING USE OF REQUIRED DESIGN MIX	–	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
4. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	–	ASTM C172 ASTM C31 ACI 318: 26.4.5, 26.12	1908.10
5. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	–	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
6. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	–	X	ACI 318: 26.4.7–26.4.9	1908.9
7. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	–	X	ACI 318: 26.10.1(b)	–

FOR SI: 1 inch = 25.4 mm
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12 SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

9 S-1.1 SPECIAL INSPECTION TABLE (CONCRETE)

(CBC 2016) TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS SPECIAL INSPECTIONS	PERIODIC SPECIAL INSPECTIONS
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	–	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	–	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	–	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	–
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	–	X

16 S-1.1 SPECIAL INSPECTION TABLE (SOILS)

(CBC 2016) TABLE 1705A.2.1 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	–	X	–	–
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	–	X	AISC 360, SECTION A3.1	2203A.1
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	APPLICABLE ASTM MATERIAL STANDARDS	–
c. MANUFACTURER'S CERTIFIED TEST REPORTS	–	X	–	–
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	–	X	–	–
5. INSPECTION OF WELDING:				
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	X	–	AWS D1.1 AWS D1.8	1705A.2.1
2. MULTIPASS FILLET WELDS	X	–		
3. SINGLE-PASS FILLET WELDS > 5/16"	X	–		
4. PLUG AND SLOT WELDS	X	–		
5. SINGLE-PASS FILLET WELDS ≤ 5/16"	–	X		
6. FLOOR AND ROOF DECK WELDS	–	X	AWS D1.3	
b. REINFORCING STEEL:				
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	–	X	AWS D1.4, ACI 318: SECTIONS 26.6.4.1, 18.2.8, 25.5.7.4	–
2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT	X	–		–
3. SHEAR REINFORCEMENT	X	–		–
4. OTHER REINFORCING STEEL	–	X		–

FOR SI: 1 inch = 25.4 mm
a. WHERE APPLICABLE, SEE ALSO SECTION 1705A.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

18 S-1.1 SPECIAL INSPECTION TABLE (STEEL)

15 S-1.1 NOT USED

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20 S-1.1 BG DISCLAIMER

NO.#	REMARKS	DATE

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GENERAL NOTES & DETAILS

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DRAWN BY:	SC
DATE	01/22/18
SCALE	N.T.S.
JOB NO.	800.0118
SHEET	9

S-1.1

OF 9 SHEETS