DOCKETED	
Docket Number:	24-OPT-05
Project Title:	Corby Battery Energy Storage System Project
TN #:	262554
Document Title:	Project Description Update
Description:	Updated Project description with associated environmental analyses.
Filer:	Doug Urry
Organization:	Tetra Tech
Submitter Role:	Applicant Consultant
Submission Date:	4/2/2025 11:23:24 AM
Docketed Date:	4/2/2025

Project Description Update

Corby Battery Energy Storage System Project

April 2025

Prepared for

NEXTera ENERGY RESOURCES

700 Universe Boulevard
Juno Beach, FL 33408

Prepared by

TETRA TECH

17885 Von Karman Avenue
Suite 500
Irvine, CA 92614

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

Application	Opt-in Application
BESS	battery energy storage system
dBA	A-weighted decibels
DFPD	Dixon Fire Protection District
FTE	full-time equivalent
gpm	gallon per minute
hp	horsepower
L_{dn}	day-night sound level
LEC	local exchange carrier
L_{eq}	equivalent sound level
LORS	laws, ordinances, regulations, and standards
NPDES	National Pollutant Discharge Elimination System
PD	Project Design
PG&E	Pacific Gas and Electric
Project	Corby Battery Energy Storage System Project
PSC	Putah South Canal
SID	Solano Irrigation District

1.0 INTRODUCTION AND PURPOSE

Since filing the Corby Battery Energy Storage System Project (Project) Opt-in Application (Application) in November 2024, additional Project description details are now available that require updates to the environmental analysis. As noted in the Application, the water supply for the Project will be provided either by Solano Irrigation District (SID), the local water purveyor, or by installing a groundwater well at the site. Both options were considered in the Application; however, additional detail is provided herein. Additionally, an onsite water tank and connection to offsite telecommunications facilities have been added to the Project design. Finally, the site layout has been updated to add a second entrance to the battery energy storage system (BESS) facility off Byrnes Road. Accordingly, this document serves as the updated Project Description and Environmental Analysis to account for these Project description updates.

Section 2.0 describes these Project description updates in further detail; Section 3.0 analyzes the potential environmental impacts resulting from these updates relative to the analysis included in the Application. As discussed herein, the Project, with these updates, will not result in any significant environmental impacts.

2.0 PROJECT DESCRIPTION UPDATES

Section 2.1 describes the updates and additions to the Project design since submittal of the Application, including the following elements:

- SID water supply system
- Groundwater well water supply system
- Onsite water tank
- Telecommunications line
- Site access roads

Section 2.2 provides updates to Project construction activities corresponding to the Project description updates.

The environmental analysis related to these Project description updates is provided in Section 3.0.

2.1 Project Design Updates

Figure 2-1 depicts the updated Project layout. The existing site rendering and updated proposed site rendering are provided in Figures 2-2 and 2-3, respectively. The updated site plan and preliminary grading plan are provided in Appendix 2-A, reflecting the Project Description updates. No changes to the Project substation design were required.

2.1.1 SID Water Supply System

As discussed in the Application Sections 2.3.3 and 4.10, Project water supply needs may be met using water from the SID irrigation system. A water source is required to meet construction needs, for temporary landscape irrigation, and to fill an onsite water tank for emergency fire suppression use to secure the perimeter and provide defensible space to the surrounding areas (see Section 2.1.3). Up to 30 acre-feet of water will be required during construction, including initial filling of the proposed onsite water tank. Approximately to 664,000 gallons (2.0 acre-feet) of water will be required during Year 1 of operations for temporary landscaping irrigation, with that amount being reduced by approximately 30 percent per year, with cessation of irrigation expected after Year 5. The onsite water tank will only require refilling in the event stored water is used for emergency response activities, which is not anticipated, or due to tank maintenance and will occur infrequently at most.

As discussed in the Application Section 2.3.3, SID typically provides water for construction needs within their boundary. SID irrigation water will be obtained either via the irrigation canal abutting the Project site or via their pressurized system and trucked to the Project site, depending on time of year, availability, and feasibility of pumping directly from the canal. Additional information for each approach is provided in the following sections.

2.1.1.1 Irrigation Canal

An east-west oriented unlined irrigation canal is located within an SID easement between the Project site and Kilkenny Road. The canal is approximately 3 feet deep and 10 feet wide based on site topographic survey data, aerial imagery, and site reconnaissance documentation. SID distributes water to irrigation users during the irrigation season, which varies annually but is typically April through October.

If canal water is available and approved for construction use by SID at the time of construction, the construction contractor will withdraw water from the canal using a temporary pumping, conveyance, and storage system. The system will include an intake screen, flexible pump intake hose, pump, shutoff valve, flexible conveyance hose, and a temporary storage tank located approximately 100 feet south of the canal within the construction laydown area. Alternatively, the water may be pumped directly into water trucks in lieu of using a temporary storage tank. The system will be manually operated as needed to fill the temporary water tank or water trucks throughout the construction phase. A conceptual layout showing the system components and approximate location is provided in Figure 2-4. A similar system could be used to fill water trucks for landscape irrigation during the first 5 years of operation, if necessary.

A 5-horsepower (hp), 245 gallon per minute (gpm), gasoline-powered centrifugal pump has been conservatively assumed for the purposes of the updated environmental analysis (pump specifications are provided in Appendix 2-B). The pump will be placed within secondary containment at least 50 feet from the canal.

2.1.1.2 Offsite SID Pressurized System

If SID water is available and approved for construction use by SID, but the adjacent irrigation canal is not a suitable source due to seasonal or other constraints, the Applicant's construction contractor may fill water trucks at other locations within SID's distribution system.

The SID irrigation system is defined by the Putah South Canal (PSC). SID diverts water from Lake Solano at the Putah Diversion Dam into the PSC. The PSC is the main canal that serves SID's irrigated area, from which diverge an association of sub-canals, laterals, and pipelines. Approximately half of SID irrigated lands are served primarily by pressurized systems. This includes 169 miles of pipelines or 46 percent of the total lines within the SID distribution system. SID currently has a few agricultural pipelines that have large capacities with low-volume users. These areas are typically operated as on-demand systems. Additionally, SID also provides water for nine small potable water systems and six non-potable water systems. The nearest SID pressurized pipeline to the Project area is approximately 1 mile away as is the nearest SID-owned groundwater well (SID 2018).

For the purposes of the environmental analysis provided in the Application and herein, the following assumptions were made regarding offsite SID water use:

- Water will be sourced within 7 miles of the Project site.
- Up to eight water trucks will be filled daily (5 days per week) during the 9 months spanning the site grading, BESS, Project Substation, and gen-tie construction activities.

2.1.2 Groundwater Well

As described in the Application Section 2.3.3, Section 4.10, and Appendix 4.10-B, the Applicant will develop an onsite groundwater well to serve Project water supply needs in the event SID is unable to meet Project water needs based on seasonal availability, water use limitations, or other restrictions.

The proposed groundwater well, if required, will be installed on the southwest side of the BESS array adjacent to a facility road, as depicted on Figure 2-1 and the updated site plan (Appendix 2-A). The location was selected based on the following siting factors:

- Solano County water supply well setback requirements (see Table 2.1-1),
- Distance from water supply wells on adjacent properties,
- Water truck access, and
- Avoidance of an onsite Pacific Gas and Electric (PG&E) gas transmission line easement.

The Solano County Department of Resource Management requires the well to be located certain distances from the features listed in Table 2.1-1 below to protect groundwater from potential contamination sources.

Table 2.1-1. Solano County Department of Resource Management Setback Requirements for Non-Public Supply Water Wells

Feature	Minimum Distance Guideline (feet)
Property line, stream, ditch, drainage course	25
Sewer line	50
Septic tank, disposal field, deep trench, animal enclosure, hazardous materials tanks	100

The selected location is located at least 1,000 feet from the nearest supply well on adjacent properties to minimize potential drawdown impacts (refer to Appendix 4.10-B, *Groundwater Supply Feasibility Study*, of the Application for further information regarding drawdown). This location also maintains the required property line setback, avoids the PG&E gas transmission line easement, and will allow water truck access during construction.

The expected groundwater well production was assessed in Appendix 4.10-B, *Groundwater Supply Feasibility Study*, of the Application. As discussed therein, a suitable well pump for a site water well with 60 gpm capacity will be a 4-inch-diameter, 5-horsepower electrical submersible pump. During construction, groundwater will either be pumped directly into water trucks or may be stored in a temporary tank placed within the onsite construction laydown area southwest of the BESS array. During operations, water will be pumped directly into a water truck to be dispensed by the temporary irrigation system.

For well construction, an area of approximately 100 feet by 100 feet will be necessary for drilling rig and equipment setup. Development of an onsite well will involve well drilling, casing installation, and well development and testing activities described below.

Well development will consist of drilling and installing an initial conductor casing. A pilot borehole will then be drilled and tested at a depth of approximately 300 to 500 feet below ground surface. The final depth of the borehole will depend on aquifer characteristics. An appropriate filter pack and well screen will then be prepared based on analysis of formation samples from geophysical surveys completed within the cleaned, pilot borehole. After a final well design has been prepared and relevant surveys completed, the well casing will be installed within the now enlarged borehole, at which point a filter pack, transition layer, and respective cement and bentonite seals will be installed.

The initial well development will consist of utilizing air lifting methods to remove heavy drilling fluids, including sand or drilling mud. Any turbid discharge will be contained in temporary storage tanks for offsite disposal. Clear water will be contained in onsite percolation ponds. After removing any remaining sediment from the well, the drill rig and associated equipment will be demobilized, and a pump rig and associated equipment will be mobilized.

Final well development will include installing a test pump to determine sediment content and clarity of the produced water. When the well is adequately developed, aquifer tests will be conducted, the test pump will be removed, any sediments will be removed, and a downhole video survey will be performed. Finally, site cleanup and restoration will occur. A temporary well cover will be installed as will a permanent well pump and equipment.

During drilling and well construction, soil cuttings, drilling mud, and groundwater will be generated. Approximately 18 tons of drilled soil wastes and approximately 8,400 gallons of sediment-laden water are estimated to be generated, contained in roll-off bins prior to offsite disposal. The wastes will be transported by truck and disposed of at Hay Road Landfill located approximately 10 miles southeast of the Project site. Each truckload will be limited to approximately 10 cubic yards to prevent spilling while loading the roll-off bin on to the truck. A total of 10 truckloads to the landfill are anticipated.

Waste groundwater will also be produced during the well development and testing activities, which will require disposal. A preliminary estimated total volume of waste groundwater is approximately 50,000 gallons (9,000 gallons from initial well development, 26,600 gallons from final well development, and 14,400 gallons from aquifer testing). Groundwater will be contained onsite within temporary berms to facilitate infiltration and will not be discharged offsite. Sufficient land area is available at the site to use a bermed area for percolation without allowing any runoff. An earth-bermed area of 80 feet by 80 feet by 2.5 feet high will conservatively contain 50,000 gallons of groundwater with more than 0.5 foot of freeboard.

2.1.3 Onsite Water Tank

The Applicant is proposing to install an approximately 24,000-gallon onsite water tank to be used as a backup water supply resource for Dixon Fire Protection District (DFPD) for local fire suppression needs. While fire suppression is not recommended for direct use on the BESS equipment, the water source could be used by first responders to fight wildfires or for fire events on other nearby properties at their discretion. This Project element is being proposed as a benefit to the local community to help address fire suppression needs whether or not related to the Corby BESS facility.

The proposed water tank will be located adjacent to the southern BESS site access road (see Figure 2-1 and Appendix 2-A, *Site Plan*). The water tank will be accessible via the proposed southern BESS access road off Byrnes Road. The water tank will include standard fire system connections compatible with DFPD fire engine pumping apparatus, to be specified by DFPD.

The tank will be constructed using high-strength galvanized steel and will be placed on a poured concrete foundation. The tank diameter will be 15 feet, with a peak roof height of 18.75 feet. Vendor design drawings and details are provided in Appendix 2-C.

The water tank will be filled by either by water supplied by SID or an onsite groundwater well. Under either scenario, water will be pumped into water trucks at the source location, then used to fill the tank upon completion of construction. Tank replenishment is not anticipated and will be performed infrequently. Tank inspections and maintenance will be performed in accordance with manufacturer specifications, with tank cleaning or repairs performed as needed.

2.1.4 Telecommunications Line

The Project will include the construction of new telecommunications facilities within the Project site and along Kilkenny Road within the proposed gen-tie corridor outside of the Project site. The Applicant will construct an onsite telecommunications cabinet adjacent to the Project substation and will install underground fiber lines from this new cabinet to a splice point located within Kilkenny

Road approximately 0.35 mile west of the Project site boundary, just south of where the proposed gen-tie line turns north from Kilkenny Road (see Figure 2-1). These fiber lines will follow the gen-tie corridor and Underground Route Option 2 within Kilkenny Road, where they will connect to lines constructed, owned, and operated by AT&T, the local exchange carrier (LEC), at the splice point. The only telecommunications facilities proposed to be constructed by the Applicant will be within the Project site boundary and proposed gen-tie corridor for Underground Route Option 2. The LEC (AT&T) will install fiber within the right-of-way of Kilkenny Road to connect from the splice point to their existing facilities. The telecommunication line will be installed using micro trenching techniques, or boring where required, limiting ground disturbance to less than a foot in width and approximately 2 to 3 feet deep.

2.1.5 Site Access Roads

As depicted on Figure 2-1 and the updated site plan in Appendix 2-A, a second 24-foot-wide northern access road into to the BESS facility has been added off Byrnes Road. The preliminary grading plan (also provided in Appendix 2-A) was updated to accommodate the second entrance road including a culvert to allow drainage in the existing roadside swale.

2.2 Project Construction Updates

2.2.1 Construction Schedule

Project construction remains a 14-month schedule, as described in the Application, Section 2.4.4. Groundwater well development, if required, will begin 1 month ahead of construction contractor mobilization, expanding the overall duration of onsite activities to 15 months through Project commissioning. The additional Project features described in the Project Description Update will be integrated into the existing construction schedule as presented in Table 2.2-1 and described below.

Table 2.2-1. Typical Construction Stages and Duration (replaces Table 2-3 in Application)[1/]

Task	Duration[2/]
Groundwater Well Development	**2 months**
Site Preparation	2 months
Grading	3 months
BESS Civil/Mechanical/Electrical Installation	7 months
Gen-tie Site Preparation	2 weeks
Substation Installation	6 months
Gen-tie Foundation and Tower Erection and Underground Installation	6 months
Generation Tie Stringing and Pulling	3 months
Telecommunications Line Installation	**2 months**
Onsite Water Tank Installation	**4 months**
Commissioning	3 months

1/ Added items are shown in **bold text**.
2/ Tasks will overlap; therefore, durations are not cumulative.

2.2.1.1 SID Water Supply System

The information presented herein regarding SID onsite or offsite water supply option is not a Project description change and does not affect schedule.

2.2.1.2 Groundwater Well

Groundwater well development, if required, will need to begin approximately 1 month ahead of Project construction (i.e., contractor mobilization) to meet water supply requirements for site grading. The estimated duration of well drilling and construction is outlined below.

- Well drilling contractor mobilization, well drilling, and well construction: 2 weeks
- Well development and testing: 2 weeks
- Well pump and equipment procurement and installation: 4 weeks

The estimated total duration for onsite well installation activities from well driller mobilization to well equipping is approximately 2 months (including the month preceding contractor mobilization and construction month 1). These schedule assumptions assume well drilling activity will be completed between 7 a.m. and 5 p.m. Monday-Friday and Saturday (if required) between 8 a.m. and 5 p.m. consistent with other Project construction schedule assumptions.

2.2.1.3 Onsite Water Tank

Installation of the onsite water tank is anticipated to require up to 4 months to complete and will occur during the end of construction activities and beginning of Project commissioning (between construction months 9 through 12).

2.2.1.4 Telecommunications Facilities

Installation of Project telecommunications facilities is anticipated require approximately 2 months during construction months 10 through 11.

2.2.1.5 Site Access Roads

The additional site access entrance road has no construction schedule implications.

2.2.2 Construction Workforce

Table 2.2-2 presents the updated total construction workforce required for the Project, including the additional workers required for installation of the groundwater well and onsite water tank. Additional construction workers, beyond the labor estimates previously provided in the Application, will not be required for the SID water supply system, telecommunications line, or additional site access entrance. Table 2.2-2 replaces Table 2-1 in Section 2, *Project Description*, of the Application.

Table 2.2-2. Construction Workforce (Replaces Table 2-1 in Application)[1/]

Workforce Type	Month 0[2/]	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14
BESS		**Construction**											**Commissioning**		
Construction Laborer	**1**	**5**	12	12	14	16	16	16	16	**26**	**26**	**42**	**34**	24	24
Carpenters							2	2							
Cement Finishers					2	2	2	4		**3**	**3**	**3**	**3**		
Electricians			12	12	12	12	12	20	20	**21**	**21**	**33**	**33**	32	24
Equipment Operators	**2**	**2**	8	8	10	12	12	16	16	**11**	**11**	**11**	**3**		
Pile Drivers			1	1	2	4	4	2							
Rodmen/Ironworkers			8	8	8	8	8	4							
Plumbers/Pipefitters										**4**	**4**	**4**	**4**		
Welders										**2**	**2**	**2**	**2**		
Truck Drivers					1	1	2	3	3	3	1	1			
Project Managers/Support	**1**	**5**	8	11	12	16	20	24	20	**19**	**18**	**27**	**27**	24	16
Gen-tie[3]															
Construction Laborer								12	12	12	12				
Carpenters								2	2	2	2				
Cement Finishers								2	2	2	2				
Electricians								10	10	10	10				
Equipment Operators								5	5	5	5				
Pile Drivers								0	0	0	0				
Rodmen/Ironworkers								2	2	2	2				
Truck Drivers								2	2	2	2				
Project Managers/Support								5	5	5	5				
Total	**4**	**12**	**49**	**52**	**61**	**71**	**78**	**131**	**115**	**129**	**126**	**123**	**106**	**80**	**64**

1/ Updates are shown in **underlined bold text**.
2/ Groundwater well development, if required, will begin on month prior to construction contractor mobilization.
3/ Gen-tie workforce estimate Includes underground and overhead components including PG&E gen-tie and New Corby Bay equipment installation activities.

2.2.2.1 Construction Equipment

Table 2.2-3 presents the updated total construction equipment required for the Project, including the additional equipment required for the SID water supply system, groundwater well development, and onsite water tank installation. Additional equipment, beyond the equipment estimates previously provided in the Application, for the telecommunications line and additional site access entrance will be insignificant and are covered by the original BESS, Project substation, and gen-tie equipment estimates. Table 2.2-3 replaces Table 2-2 in Section 2, *Project Description*, of the Application.

Table 2.2-3. Typical Construction Stages and Assumed Equipment (Replaces Table 2-2 in Application)[1/]

Construction Stage	Equipment
Groundwater Well Drilling/Testing	**Drill Rig (1), Generator sets (1), Air Compressors (1), Forklifts (1), Loader (1)**
Groundwater Well Equipment Installation	**Generator sets (1), Air Compressors (1), Forklifts (1), Loader (1)**
Site Prep (Access Roads, Laydown Area)	Rubber Tired Loaders (1), Skid Steer Loaders (1), Tractors/Loaders/Backhoes (1)
Grading	Graders (1), Plate Compactors (1), Rollers (1), Rubber Tired Loaders (1), Skid Steer Loaders (1), Tractors/Loaders/Backhoes (1), Water Truck (1)
BESS Mechanical/Electrical Installation	Cranes (2), Air Compressors (2), Excavators (2), Plate Compactors (2), Generator Sets (2), Rollers (1), Rough Terrain Forklifts (1), Skid Steer Loaders (2), Tractors/Loaders/Backhoes (2)
Gen-tie Site Prep	Dozers (1), Excavators (1), Stump Grinder (1)
Substation Installation	Air Compressors (1), Aerial Lifts (4), Bore/Drill Rigs (1), Cranes (1), Excavators (1), Generator Sets (1), Rollers (1), Rough Terrain Forklifts (1), Rubber Tired Dozers (1), Tractors/Loaders/Backhoes (1), Trenchers (2) , Skid Steer Loaders (1)
Gen-tie Foundation, Tower Erection, and Underground Installation	Air Compressors (2), Cranes (1), Forklifts (1), Pumps (2), Welders (2), Bore/Drill Rigs (1), Excavators (1), Water Trucks (1)
Gen-tie Stringing and Pulling	Aerial Lifts (2), Tractors/Loaders/Backhoes (2)
Onsite Water Tank Installation	**Excavators (2), Backhoes (2), Bulldozers (1), Cranes (2), Welders (2), Generator Sets (2), Compactors (2), Transport Trucks (2)**
Commissioning	Backhoe (1), Forklift (2), Generator, Loader (1)
Generator-only Power Phase[/2]	Generator Sets (2), **Water pump (1)**

1/ Updates are shown in **underlined bold text**.
2/ The Generator-only Power Phase spans the entire 14-month construction period; therefore, the SID canal water extraction pump was added to this phase.

3.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

An analysis of each of the environmental areas included in the Application is presented below, as related to the Project changes included in Section 2.0. Additionally, applicable laws, ordinances, regulations, and standards (LORS) have been reviewed to determine the Project's consistency with them.

3.1 Aesthetics

Construction of the additional Project components described in Section 2.0 will not result in impacts related to aesthetics that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project site and gen-tie corridor as previously defined in the Application. Specifically in terms of added visual elements, the onsite water tank and additional

site access road described herein will be constructed on the Project site, and no additional visible Project elements will be constructed outside of the previously analyzed Project site. The water tank and additional site access road will not be visible from the Vacaville-Dixon Greenbelt or Interstate 80 and therefore will not impact scenic vistas or scenic highways. The onsite water tank and additional site access road will be visible from KOP 2a and KOP 3; see Figures 3.1-2 and 3.1-4, and the updated KOP 2a and KOP 3 BLM Visual Contrast Rating Worksheets (Form 8400-4) in Appendix 3.1-A.

The water tank is shorter than most of the Project Substation elements; see Table 3.1-1[1], which replaces Table 4.1-2 from the Application. It is located closer to Byrnes Road and more visibly prominent. However, the water tank will be gray, similar to other Project elements (Project substation, battery storage enclosures, fencing, and sound barrier) and to the existing structures (roadway, agricultural structure, and transmission towers and lines). The water tank will contrast with the undeveloped agricultural land but will be consistent with the horizontal and vertical lines and colors of other human-made structures throughout the landscape. While the water tank well will introduce a contrast, it will blend in with the other Project elements and therefore not increase the contrast created by the Project. While the water tank would be visibly prominent, views for local motorists would be of short duration due to partial or full blockage of views by vegetation and structures prior to approaching the Project site, limiting view accessibility of the Project including the water tank. In addition, the proposed Project landscaping, proposed Project Design Measure **PD AES-01**, would soften the contrast between the agricultural land and the water tank. As the landscaping matures in height and filling out, the landscaping will largely obscure the Project, reducing the contrast with agricultural land.

The additional site access road will blend in with the landscape and not attract attention. The additional Project features will not include lighting and therefore will comply with proposed **PD AES-02**. Adherence to proposed **PD AES-03** will ensure that the surface coatings and materials of the water tank display overall low reflectivity. Refer to DR VIS-6 and DR VIS-7 responses in Data Request Response #1 for the proposed Project Design Measures **PD AES-01** through **PD AES-03**. The additional site access road will not add lighting or glare. Construction of the additional Project features will not impact scenic vistas, scenic highways, visual character, or light and glare, beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to aesthetics. Therefore, aesthetic impacts will be less than significant. Although only KOP 2a and KOP 3 required modification to present the updated Project components, a complete set of simulations has been provided for review; see Figures 3.1-1 through 3.1-12.

[1] An identical table was also provided in Data Request Response #1 in response to DR VIS-5.

Table 3.1-1. Approximate Dimensions, Color, Materials, and Finishes of the Major Project Features (Replaces Table 4.1-2 in Application)[1/]

Feature	Length (feet)	Width (feet)	Height (feet)	Color	Materials	Finish
BESS Array Components						
Batteries and battery enclosures	20	8	9.5	Traffic Gray RAL 7042	Prefabricated Metal Building	Semi-gloss
Inverters	22	7	7	Gray/Dark gray	Electrical Equipment	NA
Auxiliary transformers	7	6.5	8	Munsell Green 7GY 3.29/1.5	Electrical Equipment	NA
Auxiliary switchboard	10	3	7.5	ANSI 61 Gray	Electrical Equipment	Textured powder coat
Project Substation Components						
Generator step-up transformers	22	28	26	Painted steel – ANSI 61 Gray	Electrical Equipment	NA
Switchgear	8	12	28	No paint - Steel/Galvanized steel	Electrical Equipment	NA
Busbar structures	274	275	28	No paint - Galvanized steel	Electrical Equipment	NA
Riser structures	-	-	65	No paint – **Galvanized steel**	Steel	NA
Substation control house	60	14	**11.6**	**Ash Gray**	Concrete, Steel, Metal alloys, Electrical Equipment	NA
Shield Poles	NA	NA	70	No paint - **Galvanized steel**	Steel	NA
Other Project Components						
Generation tie line (above ground portion) (up to 10 structures)	NA	**37.1 inches in diameter**	90 - 130 (Monopole, H-Frame, and 3-Pole Tubular Steel Pole [TSP])	No paint/gray	Steel	NA
Perimeter Fence (Substation)	1,230	-	6	No paint/gray	Steel	NA
Perimeter Fence (BESS array)	2,977	-	6	No paint/gray	Steel	NA
Sound Barrier	785	-	15	Gray	Blend of wood shavings and cement	NA
Signage	NA	8	4	various	Steel/plastic	NA
Fiber Optic Poles (approximately 10 structures)	**NA**	**13.8 inches in diameter**	**30-80**	**Brown**	**Wood**	**NA**
Water Tank	**15**	**15**	**19.25**	**No paint/gray**	**Steel**	**NA**

1/ Updated information is provided in **bold text**.

3.2 Agriculture and Forestry

The Project description updates described in Section 2.0 will not result in impacts related to agriculture and forestry that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact or convert any additional agricultural lands beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to agriculture and forestry resources. Therefore, agriculture and forestry resource impacts will be less than significant.

3.3 Air Quality

The Project air quality analysis is currently being updated to address the Project description updates and will be provided concurrently with the responses to air quality data requests already received by the Applicant.

3.4 Biological Resources

Construction of the additional Project components described in Section 2.0 will not result in impacts related to biological resources that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. The addition of the second BESS access road changes approximately 2,400 square feet (0.05 acre) from a temporary to a permanent impact, and the addition of the water tank changes approximately 177 square feet (0.004 acre) from a temporary to a permanent impact. The other Project updates will not have any effect on impact acreages. These impact type changes were accounted for in the impact acreage summary provided in response to Data Request DR BIO-15, and will not result in significantly different impacts than previously analyzed. The Project description updates presented in Section 2.0 will not impact any additional biological resources beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to biological resources. Therefore, biological resource impacts will be less than significant.

3.5 Cultural Resources

Construction of the additional Project components described in Section 2.0 will not result in impacts related to cultural resources that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously

analyzed Project footprint. Construction of the additional Project facilities will not impact any additional historical or archaeological resources beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to cultural resources. Therefore, cultural resource impacts will be less than significant.

3.6 Energy

The Project energy analysis is currently being updated to address the Project description updates and will be provided concurrently with the air quality and greenhouse gas analysis updates.

3.7 Geology and Soils

Construction of the additional Project components described in Section 2.0 will not result in impacts related to geology, soils, and paleontological resources that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint site as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact any additional geology, soils, and paleontological resources beyond those previously assessed in the will Application; and the Project, with the addition of these components, will comply with applicable LORS as related to geology and soils. Therefore, geology and soils impacts will be less than significant.

3.8 Greenhouse Gases

The Project greenhouse gases analysis is currently being updated to address the Project description updates and will be provided concurrently with the responses to air quality and greenhouse gas data requests.

3.9 Hazards and Hazardous Materials

Construction of the additional Project components described in Section 2.0 will not result in impacts related to hazards and hazardous materials that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site, and no additional activities will occur outside of the previously analyzed Project footprint. Hazardous materials use during the additional construction activities described in Section 2.0 will be limited to the use of fuels, lubricants, other oils, and greases, to fuel and service construction equipment consistent with the uses describe in Section 4.9 of the Application. This will include the use of a 5-hp gasoline-powered pump that will be placed within secondary containment at least 50 feet from the SID canal. Refueling this and other construction-related equipment will be performed within secondary containment. Construction of the additional Project facilities will not emit or create any additional hazards to the public or the environment beyond those previously assessed in the Application; and the Project, with the addition of these

components, will comply with applicable LORS as related to hazards. Therefore, hazards and hazardous materials impacts will be less than significant.

3.10 Hydrology/Water Quality

Construction of the Project components described in Section 2.0 will not result in impacts related to hydrology or water quality that will be greater than those analyzed in the Application. The initial supply sources and associated infrastructure described within the Application, including the proposed groundwater well and SID water supply system, remain unchanged. The additional information introduced most recently within Section 2.0 solely serves to clarify proposed water diversion components and groundwater well design and installation procedures. This information is further detailed as follows.

As noted, SID irrigation water may be obtained either via the irrigation canal abutting the Project site or via their pressurized system and trucked to the Project site. If water supply is diverted from a SID irrigation canal, a gasoline-powered centrifugal pump, conservatively assumed for the purposes of the updated environmental analysis, will be placed within secondary containment at least 50 feet from the canal; this will mitigate for any potential water quality impacts to surface or groundwater.

If a groundwater well is constructed as a supply source, soil cuttings, drilling mud, and groundwater will be generated. In order to mitigate any impacts, all wastes will be transported by truck and disposed of at Hay Road Landfill, located approximately 10 miles southeast of the Project site. Truck fills will be limited to 10 cubic yards in order to prevent spilling while loading the roll-off bin on to the truck. Waste groundwater, produced as a result of well development, will be contained onsite within temporary berms to facilitate infiltration and will not discharge offsite. Containment berms will mitigate any offsite discharge. Groundwater well construction will also follow well permit application specifications around setback distances. Groundwater contamination in the vicinity of the Project site was assessed in Appendix 4.10-B, *Groundwater Supply Feasibility Study*, of the Opt-In Application. As discussed therein, no evidence of groundwater contamination was identified in the vicinity of the Project site.

Inspections and maintenance of the onsite water tank will be performed in accordance with manufacturer specifications, with tank cleaning or repairs performed as needed. The water tank will be filled by either by water supplied by SID or an onsite groundwater well. No additional lands will be disturbed outside of the previously analyzed Project footprint due to construction of the onsite water tank, therefore no impacts are anticipated to local water quality or hydrology. Likewise, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. The updated grading plan provided in Appendix 2-A shows an additional culvert associated with the additional site access road into the BESS facility, allowing drainage flow within the existing drainage swale along the eastern Project site boundary. This is consistent with the drainage design for the Project substation and southern BESS access road grading and drainage design provided in the Application.

A National Pollutant Discharge Elimination System (NPDES) discharge permit will not be required because no groundwater is planned to be discharged to the drainage ditches or bodies of surface

water. All groundwater generated during well development and testing will be contained onsite in tanks for offsite disposal or within a temporary percolation pond. This is in contrast to the NPDES stormwater construction general permit coverage requirements detailed within the Application.

3.11 Land Use and Planning

Construction of the additional Project components described in Section 2.0 will not result in impacts related to land use and planning that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not conflict with any land uses beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to land use and planning. Therefore, land use and planning impacts will be less than significant.

3.12 Mineral Resources

Construction of the additional Project components described in Section 2.0 will not result in impacts related to mineral resources that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact any mineral resources beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to mineral resources. Therefore, mineral resources impacts will be less than significant.

3.13 Noise

Construction of the additional Project components described in Section 2.0 will not result in impacts related to noise that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. The additional construction stages and equipment have been assessed using the same methodology described in the Application. The resulting construction noise levels for the additional construction stages and equipment are shown in bold font in Table 3.13-1 (replacing Table 4.13-6 in the Application).

Table 3.13-1. Estimated Construction Noise by Stage at Nearest Receiver, dBA (Replaces Table 4.13-6 in Application)[1/]

Stage	Equipment	Hourly L_{eq} at 50 feet	Nearest Receiver and Distance	Hourly L_{eq} at Nearest Receiver
GW Well Drilling/Testing	**Drill Rig (1), Generator Sets (1), Air Compressors (1), Forklifts (1), Loader (1)**	**83**	**Rec01 (1,200 feet)**	**56**
GW Well Equipment Installation	**Generator Sets (1), Air Compressors (1), Forklifts (1), Loader (1)**	**82**	**Rec01 (1,200 feet)**	**54**
Site Preparation	Loader (2), Tractor (1)	82	Rec01 (1,200 feet)	55
Grading	Compactor (1), Loader (2), Grader (2), Roller (1), Tractor (1), Water Truck (1)	86	Rec01 (1,200 feet)	59
Battery/Container Installation	Compactor (2), Compressor (4), Crane (2), Excavator (2), Forklift (1), Loader (2), Generator (2), Tractor (2)	90	Rec01 (1,200 feet)	62
Gen-tie Site Prep (Orchard Removal)	Dozer (1), Excavator (2), Stump Grinder (1)	86	Rec01 (1,200 feet)	59
Substation Installation	Bore/Drill Rig (1), Compressor (1), Crane (1), Dozer (1), Excavator (1), Forklift (1), Generator (1), Loader (1), Aerial Man Lift (4), Roller (1), Trencher (2), Tractor (1)	90	Rec01 (1,200 feet)	62
Gen-tie Foundations, Tower Erection, and Underground Installation	Bore/Drill Rig (1), Compressor (2), Crane (1), Excavator (1), Forklift (1), Pumps (2), Water Truck (1), Welder (2)	87	Rec01 (1,200 feet)	59
Gen-tie Stringing and Pulling	Aerial Man Lift (2), Tractor (2)	83	Rec01 (1,200 feet)	56
Onsite Water Tank Installation	**Excavators (2), Backhoes (2), Bulldozer (1), Cranes (2), Welders (2), Generator Sets (2), Compactors (2), Trucks (2)**	**89**	**Rec01 (1,200 feet)**	**62**
Generator Only Phase – Construction	**Generator Sets (2), Water Pump (1)**	**75**	**Rec01 (1,200 feet)**	**48**

1/ Added items are shown in **underlined bold text**.

Table 3.13-1 shows that the loudest of the additional construction stages will be the onsite water tank installation resulting in a 62 A-weighted decibels (dBA) equivalent sound level (L_{eq}) at the nearest receiver. In order to calculate the 24-hour day-night sound level (L_{dn}) for this worst-case additional stage, Project construction hours for all heavy machinery equipment were assumed to be from 7:00 a.m. to 5:00 p.m., which results in an L_{dn} of 63 dBA. This level is expected to produce an approximately

4-dBA increase to the ambient L_{dn} sound levels during this construction stage, which is not considered to be significant. The Project is also expected to meet the Solano County General Plan construction sound level limit of 65 dBA L_{dn} at residential land uses.

The worst-case vibration levels are still expected to occur during the grading construction stage, which are presented in the Application within Section 4.13.3.2 and Table 4.13-8, and are not considered to be significant.

No updates to the operational phase of the Project are expected to influence noise impacts, except for the possible use of a pump used to fill water trucks for landscape irrigation during the first 5 years of operation, if necessary. The pump is expected to be a 5-hp, 245 gpm, gasoline-powered centrifugal pump that will be placed within secondary containment at least 50 feet from the canal. Due to the size, location, and limited use of the pump, no significant impacts are expected.

3.14 Population and Housing

As discussed in Section 2.2 of this document, Project construction and commissioning will continue to take place over 14 months. Groundwater well development, if required, will begin one month earlier and expand the overall duration to 15 months. Additional workers will be required for installation of the groundwater well and onsite water tank, as shown above in Table 2-3. Figure 3.14-1 shows the revised estimates, with the additional workers included as part of BESS construction and commissioning. This figure replaces Figure 4.14-1 in Section 4.14, *Population/Housing*, of the Application.

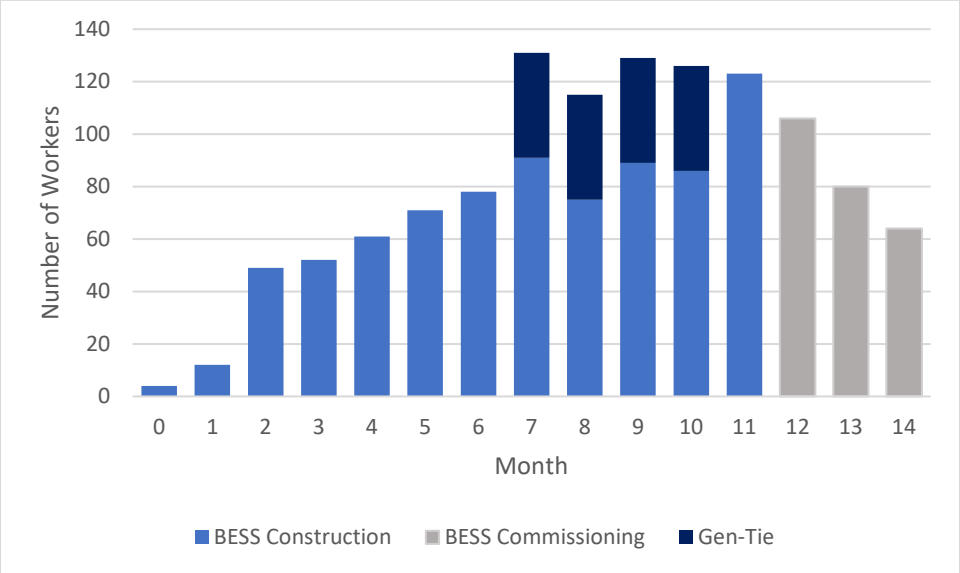


Figure 3.14-1. Construction Personnel by Month (Replaces Figure 4.14-1 in Application)

An additional 4 workers will be added in months 0 and 1, and 26 additional workers will be added during months 9 to 12. These additions to the construction and commissioning workforce are not expected to affect the findings in the Application with respect to construction-related impacts to population, housing, and fiscal resources.

These additional workers will, however, affect the estimated construction-related impacts on employment and the local economy. Total direct full-time equivalent (FTE) jobs and earnings increase from 91 jobs and $17.6 million to 100 jobs and $19.1 million. Construction will also support employment and earnings in other sectors of the local economy. Revised estimates of indirect and induced employment and earnings are presented in Table 3.14-1. This table replaces Table 4.14-10 in Section 4.14, *Population/Housing,* of the Application. Indirect impacts are estimated to support approximately 22 jobs and induced impacts are estimated to support a further 31 jobs (Table 3.14-1). Overall, construction is estimated to support a total of approximately 153 jobs in Solano County and approximately $26.8 million in labor income (Table 3.14-1).

Table 3.14-1. Estimated Economic Impacts from Project Construction and Commissioning (Replaces Table 4.14-10 in Application)

Impact Type[1/,2/]	Employment (Jobs)[3/]	Earnings (millions of dollars)[4/]
Direct	100	$19.1
Indirect	22	$3.9
Induced	31	$3.8
Total	**153**	**$26.8**

Notes:
1/ Indirect and induced impacts are estimated using RIMS II Multipliers for 2332PC Power and communication structures. Multipliers are for Solano County for 2022.
2/ Construction impacts are for 15 months and include BESS construction and commissioning and gen-tie construction.
3/ Direct jobs are FTE for a period of one year (1 FTE = 2,080 hours). Indirect and induced estimates include both full- and part-time jobs.
4/ Earnings impacts are expressed in millions of dollars.
Source: BEA 2024

This increase in employment also affects the net employment benefits from construction. Revised estimates are presented in Table 3.14-2. This table replaces Table 4.14-12 in Section 4.14, *Population/Housing*, of the Application. Project construction and commissioning will result in an estimated net gain of 151 total (direct, indirect, and induced) jobs compared to the most recent agricultural use of the Project site. This will be a one-time, short-term net gain, distributed over 15 months.[2] There are no changes to the Project operation (annual) and former use (hay production) estimates presented in Table 3.14-2.

[2] Well drilling, Project construction, and commissioning will take place over 15 months. Direct employment is expressed in FTEs and presented here as an annual impact for ease of comparison.

Table 3.14-2. Net Employment Benefits from Project Construction and Operation (Replaces Table 4.14-12 in Application)

Impact Type[1,2]	Employment (Jobs)		Former Use (Hay Production)[5]	Net Project-Related Gain in Jobs	
	Project Construction and Commissioning (One-Time)[3]	Project Operation (Annual)[4]		Project Construction and Commissioning (One-Time)	Project Operation (Annual)
Direct	99.8	6.0	1.0	98.8	5.0
Indirect	22.1	6.3	0.7	21.3	5.6
Induced	30.8	4.5	0.3	30.5	4.2
Total	**152.7**	**16.8**	**2.1**	**150.6**	**14.8**

Notes:
1/ Indirect and induced impacts are estimated using RIMS II Multipliers for Solano County for 2022 for the following sectors:
- 111900 Other crop farming
- 2332PC Power and communication structures
- 2211A0 Electric power generation, transmission, and distribution

2/ Direct jobs are FTE for a period of one year (1 FTE = 2,080 hours). Indirect and induced estimates include both full- and part-time jobs.
3/ Construction and commissioning impacts are for 15 months and include BESS construction and commissioning and gen-tie construction.
4/ Operation job estimates are annual impacts assumed to occur for the 30-year operating life of the Project.
5/ The direct annual employment for hay production is rounded up to 1 FTE for the purposes of this analysis.

The Project description updates presented in Section 2.0 will not cause impacts to population, housing, employment, or fiscal resources beyond those previously assessed in the Application and updated above; and the Project, with the addition of these components, will comply with applicable LORS as related to population and housing. Therefore, population and housing impacts will be less than significant.

3.15 Public Services

Construction of the additional Project components described in Section 2.0 will not result in impacts related to public services that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road included herein will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact any public service areas such as police protection, fire protection, schools, parks, libraries and medical providers beyond those previously assessed in the Application. On the contrary, the addition of the onsite water tank is being proposed as a benefit to the local community to help address fire suppression needs whether or not related to the Corby BESS facility. The water tank will be accessible to local fire departments and will support fire suppression capabilities in the immediate vicinity of the Project site. The Project, with the addition of these components, will also comply with applicable LORS as related to public services. Therefore, public services impacts will be less than significant.

3.16 Recreation

Construction of the additional Project components described in Section 2.0 will not result in impacts related to recreational resources that will be greater than those analyzed in the Application. All

additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact any recreational opportunities or sites beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to recreation. Therefore, recreation impacts will be less than significant.

3.17 Transportation

The Project transportation analysis is currently being updated to address the Project description updates and will be provided concurrently with the responses to transportation data requests.

3.18 Tribal Cultural Resources

Construction of the additional Project components described in Section 2.0 above will not result in impacts related to tribal cultural resources that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not impact any additional tribal cultural resources beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to tribal cultural resources. Therefore, tribal cultural resource impacts will be less than significant.

3.19 Utilities

Construction of the additional Project components described in Section 2.0 will not result in impacts related to utilities and service systems that will be greater than those analyzed in the Application. All additional Project components and activities related to the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will occur within the Project construction footprint as previously defined in the Application. While this includes the construction of new water and telecommunications facilities, these are components of the Project, the environmental effects of which have been analyzed in the Application and throughout Section 3.0 of this Project Description Update. These additional Project components will not secondarily result in the need for the construction or relocation of other new or expanded water or telecommunications facilities beyond those included as part of the Project. Additionally, the assumptions for water usage during Project construction and operation remain unchanged from the Application. Therefore, impacts will be less than significant.

Construction of these additional Project components, and specifically the onsite groundwater well, will result in additional waste generation beyond that analyzed in the Application. During drilling and well construction, soil cuttings, drilling mud, and groundwater will be generated. Approximately 18

tons of drilled soil wastes and approximately 8,400 gallons of sediment-laden water are estimated to be generated, contained in roll-off bins prior to offsite disposal. The wastes will be transported by truck and disposed of at the Recology Hay Road Landfill located at 6426 Hay Road, Vacaville, California, approximately 10 miles southeast of the Project site. The Recology Hay Road Landfill is a commercial landfill comprising 640 acres, 256 acres of which are permitted as a Class II landfill. As liquid waste is not accepted by the Recology Hay Road Landfill, before transportation the muddy water will be solidified with chemically inert thickener, such as MetaFLO, made for drill fluid waste solidification and accepted by the Recology Hay Road Landfill. Each truckload will be limited to approximately 10 cubic yards to prevent spilling while loading the roll-off bin on to the truck. A total of 10 truckloads to the landfill are anticipated. Copies of waste manifests will be issued by the landfill for each truckload. Prior to disposal, samples of the waste materials will be collected and analyzed for waste characterization purposes, if necessary.

As discussed in the Application, the Recology Hay Road Landfill has a permitted capacity of 2,400 tons of solid waste per day and a total design capacity of 37,000,000 cubic yards with an estimated "cease of operation date" of January 1, 2077 (CalRecycle 2025). As construction of the groundwater well will generate an additional 18 tons of drilled soil waste and 8,400 gallons of sediment-laden water over the initial 2 weeks of groundwater well construction, and the Recology Hay Road Landfill can receive 2,400 tons of waste per day with estimated capacity through 2076, there is sufficient landfill capacity to support the additional waste generation. Therefore, impacts related to solid waste disposal will remain less than significant. Finally, the Project, with the addition of these components, will comply with applicable LORS as related to utilities and service systems.

3.20 Wildfire

Construction of the additional Project components described in Section 2.0 will not result in impacts related to wildfire that will be greater than those analyzed in the Application. All additional Project components and activities will occur within the Project construction footprint as previously defined in the Application. Specifically, the SID water supply system, onsite groundwater well, onsite water tank, telecommunications line, and additional site access road will be constructed on the Project site and gen-tie corridor, and no additional lands will be disturbed outside of the previously analyzed Project footprint. Construction of the additional Project facilities will not exacerbate wildfire risks beyond those previously assessed in the Application; and the Project, with the addition of these components, will comply with applicable LORS as related to wildfire. Therefore, wildfire impacts will be less than significant.

4.0 REFERENCES

BEA. 2024. RIMS II Multipliers (2017/2022). Table 1.5 Total Multipliers for Output, Earnings, Employment, and Value Added by Detailed Industry, Solano County, CA (Type I) (Type II).

CalRecycle. 2025. Solid Waste Information System Facility/Site Activity Details – Recology Hay Road Landfill. Available online at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1184?siteID=3582.

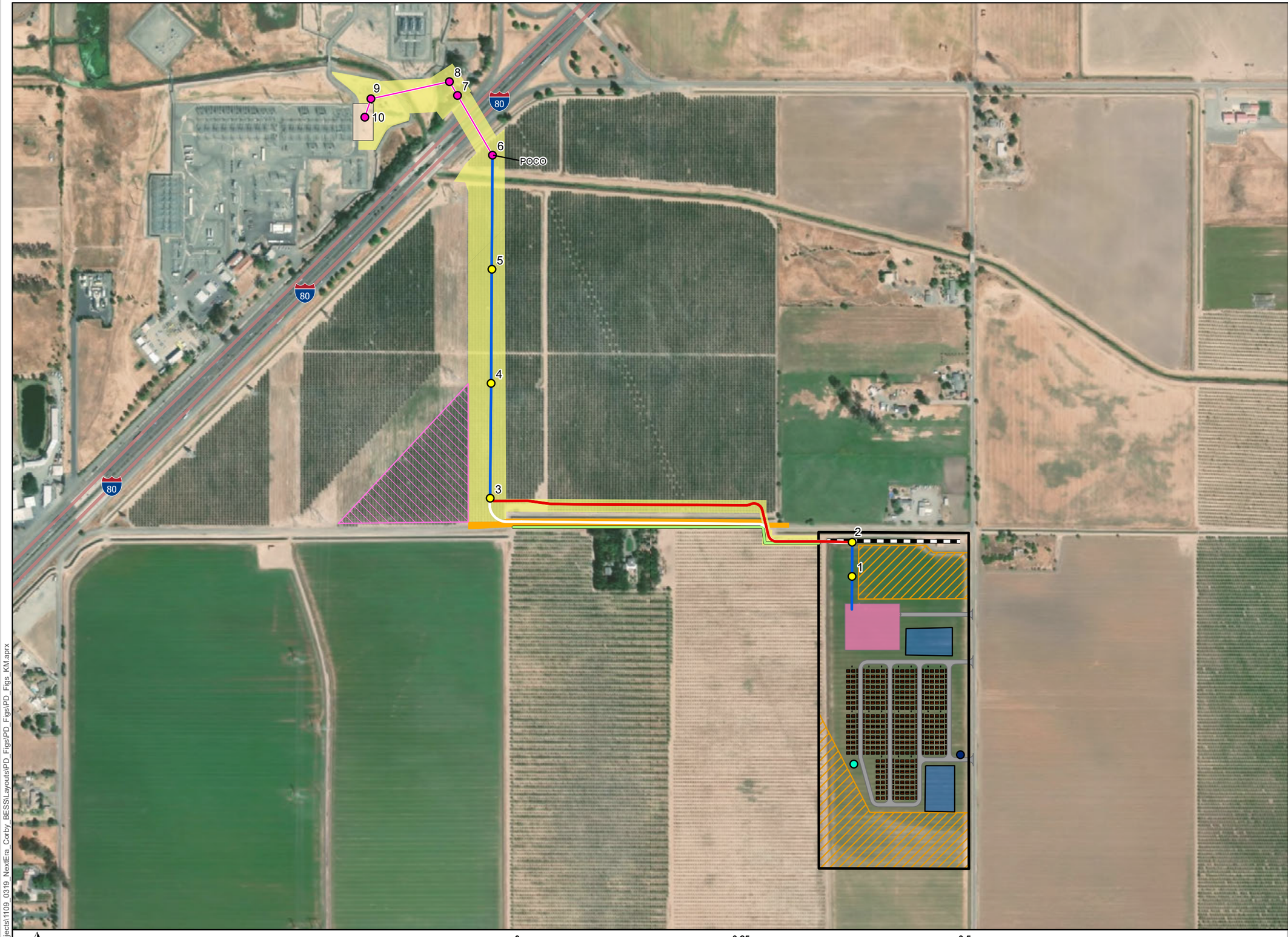
SID (Solano Irrigation District). 2018. 2018 Water Management Plan. Prepared by Davids Engineering, Inc. November. Available online at: https://www.sidwater.org/DocumentCenter/View/1695/2018-Agricultural-Water-Management-Plan-AWMP (accessed February 2025).

FIGURES

NextEra Energy
Corby Battery Energy Storage System Project

Figure 2-1
Project Layout
(Replaces Figure 1-3)

Solano County, CA



- Controlled-access Highways

Proposed Features

- Proposed Pole
- Water Tank
- Water Well
- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Sound Barrier
- Telecommunications Line
- Access Road
- Construction Laydown Area
- Gen-tie Corridor (Option 1)
- Gen-tie Corridor (Option 2)
- Gen-tie Laydown Area
- BESS Array
- Project Site
- Stormwater Pond
- Project Substation
- New Corby Bay

PG&E Features

- Pole Locations (PG&E)
- Gen-tie (Overhead; PG&E)

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

1:6,500 NAD 1983 StatePlane California II FIPS 0402 Feet

0 0.25 0.5 Miles

Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\1109_0319_NextEra_Corby_BESS\Layouts\PD_Figs\PD_Figs\PD_Figs_KM.aprx

TETRA TECH

NextEra Energy
Corby Battery Energy
Storage System Project

Figure 2-2:
Existing Site Rendering

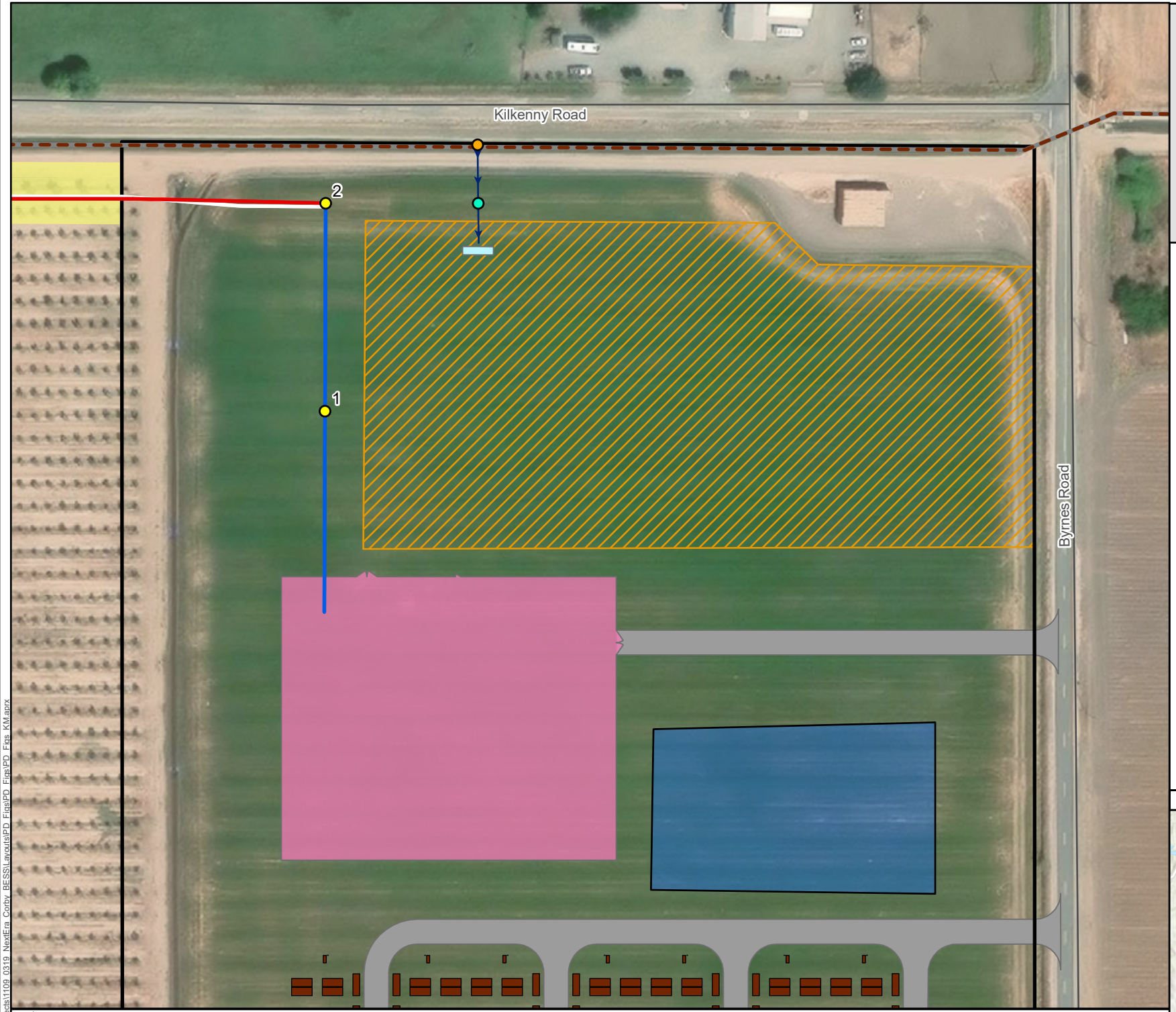
(Replaces Figure 1-4)

TETRA TECH

NextEra Energy Corby Battery Energy Storage System Project

Figure 2-3:
Proposed Site Rendering

(Replaces Figure 1-5)



NextEra Energy Corby Battery Energy Storage System Project

Figure 2-4 Irrigation Canal Temporary Water Supply Conceptual Layout

Solano County, CA

- Existing SID Irrigation Canal
- Road

Proposed Features

- Proposed Pole
- Intake Screen
- Pump (with Secondary Containment)
- Gen-tie (Overhead)
- Gen-tie (Underground; Option 1)
- Gen-tie (Underground; Option 2)
- Flexible Hose
- Access Road
- Construction Laydown Area
- Gen-tie Corridor (Option 1)
- BESS Array
- Project Site
- Stormwater Pond
- Project Substation
- Temporary Water Tank

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

1:1,500 NAD 1983 StatePlane California II FIPS 0402 Feet

0 100 200 Feet

Source: ESRI, USDA NAIP, US CENSUS, BTS

Z:\Projects\1109_0319_NextEra_Corby_BESS\Layouts\PD_Figs\PD_Figs_KM.aprx

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-1
KOP 1
Simulation Conditions

(Replaces Figure 4.1-7)

Kilkenny Road, adjacent to I-80

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	4:02 PM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	EAST
LATITIUDE:	38.39513450°
LONGITUDE:	-121.92421902°
DISTANCE TO BESS:	.87 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

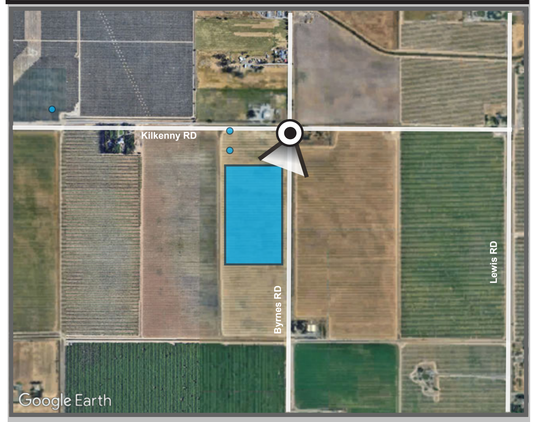
CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-2
KOP 2a

Simulation Conditions
With Landscaping After 1 Year

(Replaces Figure 4.1-8)

Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTH
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

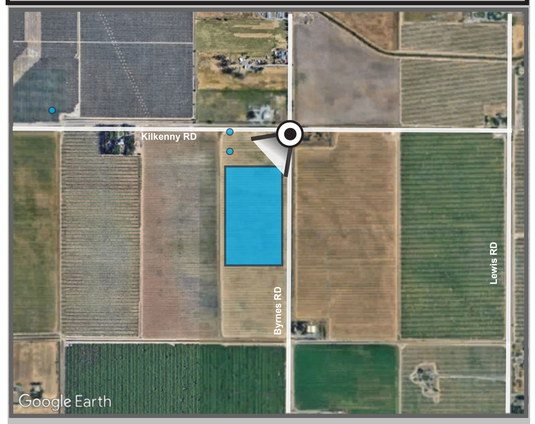
CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-3
KOP 2b

Simulation Conditions
With Landscaping After 1 Year

(Replaces Figure 4.1-9)

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

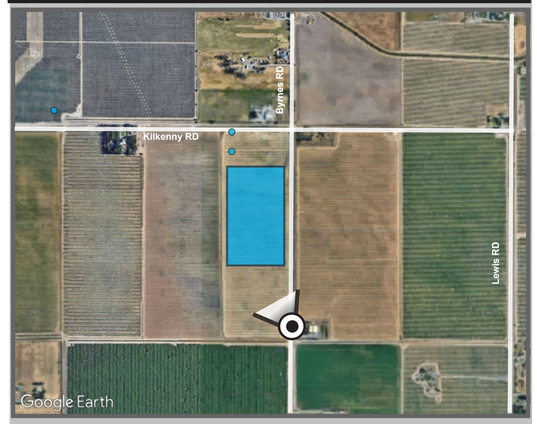
DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-4
KOP 3
Simulation Conditions

(Replaces Figure 4.1-10)

View North on Byrnes Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	12:06 PM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	NORTH
LATITIUDE:	38.3879916°
LONGITUDE:	-121.905764°
DISTANCE TO BESS:	.24 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-5
KOP 6
Simulation Conditions

(Replaces Figure 4.1-11a)

Sacramento Valley National Cemetery

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:31 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.4113211°
LONGITUDE:	-121.881903°
DISTANCE TO BESS:	1.82 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-6
KOP 6
Simulation Conditions With Indicators

(Replaces Figure 4.1-11b)

Sacramento Valley National Cemetery

VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:31 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.4113211°
LONGITUDE:	-121.881903°
DISTANCE TO BESS:	1.82 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

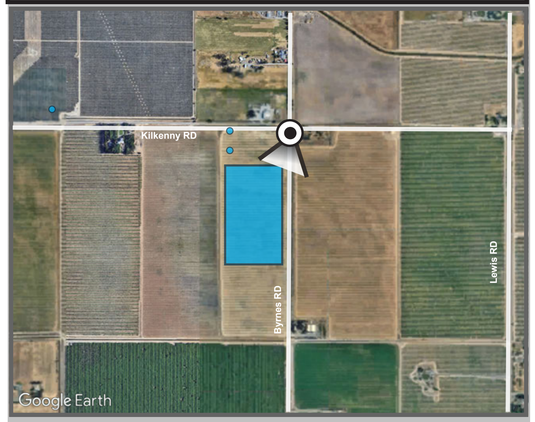
CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-7
KOP 2a

Simulation Conditions
With Landscaping After 5 Years

(Replaces Figure 4.1-12)

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTH
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

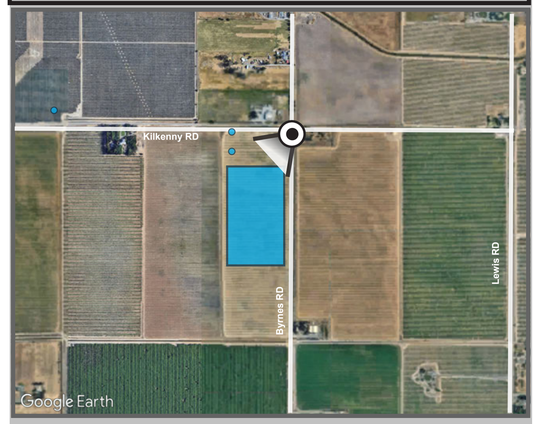
CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-8
KOP 2b

Simulation Conditions
With Landscaping After 5 Years

(Replaces Figure 4.1-13)

Intersection of Byrnes Road and Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	11:59 AM
DATE:	06/26/2024
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHWEST
LATITIUDE:	38.39519349°
LONGITUDE:	-121.9058341°
DISTANCE TO BESS:	.12 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

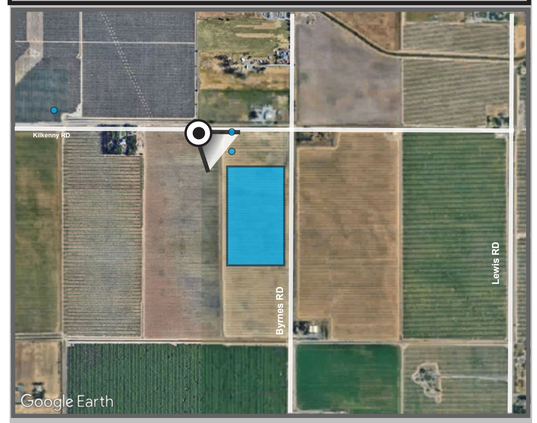
DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-9
KOP 7a

Simulation Conditions
With Landscaping After 1 Year

Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	2:38 PM
DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.395317°
LONGITUDE:	-121.919325°
DISTANCE TO BESS:	.16 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

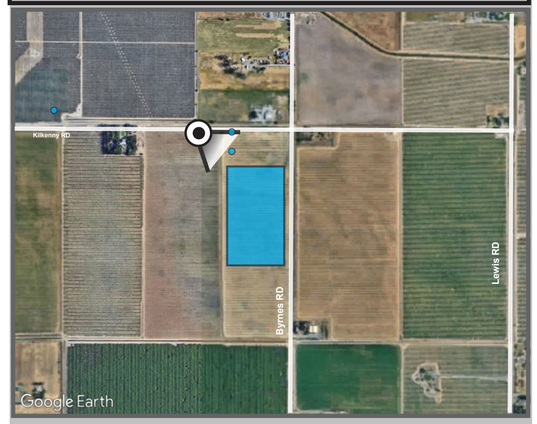
DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-10
KOP 7a

Simulation Conditions
With Landscaping After 5 Years

Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	2:38 PM
DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.395317°
LONGITUDE:	-121.919325°
DISTANCE TO BESS:	.16 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

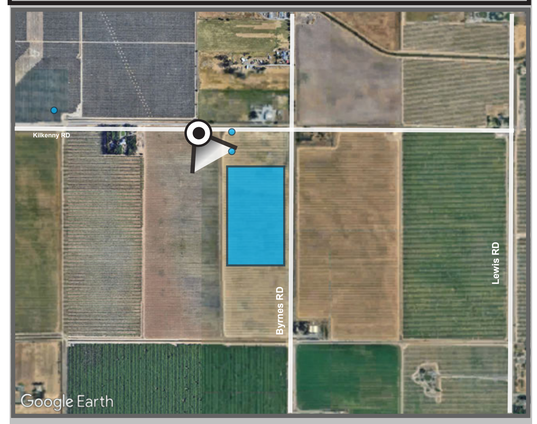
DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-11
KOP 7b

Simulation Conditions
With Landscaping After 1 Year

Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	2:38 PM
DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.395317°
LONGITUDE:	-121.919325°
DISTANCE TO BESS:	.16 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

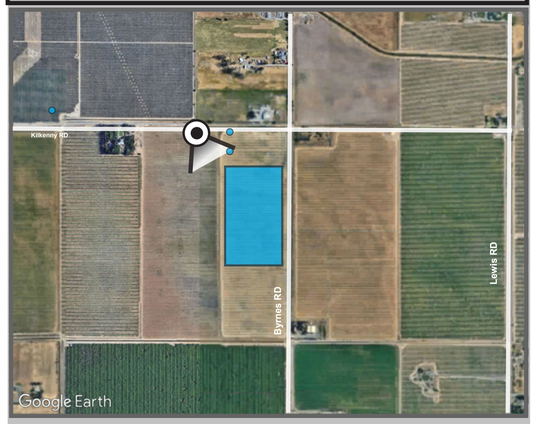
DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

CORBY BATTERY ENERGY STORAGE SYSTEM PROJECT

Figure 3.1-12
KOP 7b

Simulation Conditions
With Landscaping After 5 Years

Kilkenny Road



VICINITY MAP

LEGEND

SIMULATED EQUIPMENT

KOP LOCATION WITH SIMULATION

PHOTOGRAPH INFORMATION

TIME:	2:38 PM
DATE:	01/22/2025
WEATHER CONDITION:	SUNNY
VIEWING DIRECTION:	SOUTHEAST
LATITIUDE:	38.395317°
LONGITUDE:	-121.919325°
DISTANCE TO BESS:	.16 MILES
CAMERA TYPE:	CANON EOS R5
LENS FOCAL LENGTH:	50MM

Preliminary Visualization

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; PROJECT LAYOUT IS IN DEVELOPMENT AND SUBJECT TO CHANGE.

APPENDIX 2-A: SITE PLAN AND PRELIMINARY GRADING PLAN

Millimeters

Scale For Microfilming

Inches

REV	DATE	BY	CKD	DESCRIPTION
A	12/21/23	DCR	ERA	ISSUED FOR 30% REVIEW
B	05/03/24	DCR	JTD	ISSUED FOR 60% REVIEW
C	02/14/25	DCR	ERA	ISSUED FOR 60% REVIEW

PRELIMINARY - NOT FOR CONSTRUCTION

BURNS McDONNELL

BURNS & McDONNELL WESTERN ENTERPRISES, INC.
140 S STATE COLLEGE BLVD., SUITE 100
BREA, CA 92821

date	detailed
05/03/2024	J. DOLL
designed	checked
D. ROSENBLUM	J.T. DOWELL

CORBY ENERGY STORAGE, LLC
700 UNIVERSE BLVD.
JUNO BEACH, FL 33408

CORBY BESS PROJECT
6865 BYRNES ROAD
VACAVILLE, CALIFORNIA 95687

CORBY BESS
SITE PLAN

project	contract
163851	8410

drawing **BCR-C-003** — rev. **C**

sheet of sheets

file 163851BCR-C-003.dwg

REV	DATE	BY	CKD	DESCRIPTION
A	12/21/23	DCR	ERA	ISSUED FOR 30% REVIEW
B	05/03/24	DCR	JTD	ISSUED FOR 60% REVIEW
C	02/14/25	DCR	ERA	ISSUED FOR 60% REVIEW

CUT/FILL	
CUT	FILL
CY	CY
10,736	35,293

NORTH

0 50' 100'
SCALE IN FEET

PRELIMINARY - NOT FOR CONSTRUCTION

BURNS McDONNELL

BURNS & McDONNELL WESTERN ENTERPRISES, INC.
140 S STATE COLLEGE BLVD., SUITE 100
BREA, CA 92821

date	detailed
05/03/2024	J. DOLL
designed	checked
D. ROSENBLUM	J.T. DOWELL

CORBY ENERGY STORAGE, LLC
700 UNIVERSE BLVD.
JUNO BEACH, FL 33408

CORBY BESS PROJECT
6865 BYRNES ROAD
VACAVILLE, CALIFORNIA 95687

CORBY BESS
GRADING PLAN

project	contract
163851	8410

drawing **BCR-C-100** — rev. **C**

sheet of sheets

file 163851BCR-C-100.dwg

APPENDIX 2-B: PUMP SPECIFICATIONS

QP303H

3" Suction, Centrifugal Pump, 245 GPM, 98 ft. MAX Head; Honda GX160
Solid performance in a lightweight package. This Pump handles a variety of operations that require the expeditious movement of all types of clear water applications where there are limited solids (up to 10% of solids with a maximum solid size of 1/4 of the diameter of the pump ports.

- **Perfect for construction, municipal and agricultural jobs.**
- **Maximum pumping capacity of 245 gallons (931 liters) per minute.**
- **Maximum Head of 98 feet (30 meters).**
- **Maximum lift of 25 feet (7.6 meters).**
- **Powerful 4.8HP Honda GX160 gasoline engine.**
- **Discharge port easily rotates 180° for hose orientation.**
- **Engine oil-alert to protect the engine in the case of low engine oil.**
- **Aluminum body with cast-iron fittings.**
- **Tubular Steel frame for transportation and pump protection.**
- **Cast Iron impeller and volute for abrasion resistance/long life.**
- **Optional Wheel Kit for ease of transportation (Part#: UWK)**

Performance Data | Options

Unit Specifications

Suction x Discharge	3 x 3 in 76 x 76 mm	
Max. Water Capacity	276 gpm	1010 lpm
Max. Lift	25 ft	7.6 m
Max. Head	105 ft	32 m
Max. Pressure	45.5 psi	314 kPA
Fuel Tank Capacity	3.8 qt	3.6 L
Optional Wheel Kit	UWKA	

Dimensions & Weights

Overall Length	21.3 in	541 mm
Overall Width	14.3 in	363 mm
Overall Height	18 in	457 mm
Operating Weight	77 lb	35 kg

APPENDIX 2-C: WATER STORAGE TANK DRAWINGS

CONTAIN
WATER SYSTEMS INC

NFPA 22 FIRE PROTECTION WATER STORAGE TANK

DESIGN NOTES:

1. GENERAL INFORMATION:

1.1 JOB SITE LOCATION - MOUNTAIN HOUSE, CA 95391
1.2 TANK DIAMETER - 15'0"
1.3 EAVES HEIGHT - 18'4"
1.4 ROOF HEIGHT - 18'9"
1.5 CAPACITY - 23,980 GA
1.6 TOTAL NUMBER OF ANCHORS: 40
1.7 MATERIAL STORED: WATER
1.8 PURPOSE: FIRE PROTECTION
1.9 FREEBOARD = SEE CALCULATION REPORT
1.10 MIN. OPERATIVE LEVEL = 23 INCHES
1.11 SPECIFIC GRAVITY = 1.00

2. WIND LOADS:

3.1 WIND CODE IBC 2021
3.2 WIND VELOCITY 104 MPH
3.3 IMPORTANCE FACTOR Iw: 1.00
3.4 EXPOSURE C

SEISMIC LOADS:

4.1 IBC/ASCE IBC 2021
4.2 SEISMIC IMPORTANCE FACTOR (Ie) 1.50
4.3 SITE CLASS D
4.4 Ss 1.54 g
4.5 S1 0.53 g

3. DESIGN LOADS:

5.1 DECK LIVE LOAD 15 PSF
5.2 DECK SNOW LOAD 0 PSF
5.3 GROUND SNOW LOAD 0 PSF

4. REFERENCES:

5.1 AWWA D103 2019 - AMERICAN WATER WORKS ASSOCIATION
5.2 NFPA 22 - NATIONAL FIRE PROTECTION ASSOCIATION

GENERAL TANK NOTES:

1. HORIZONTAL SHELL BOLT SPACING = 9.375"
2. VERTICAL SHELL BOLT SPACING = 2.00"
3. ALL SHOP WELDING TO BE PER AWS D1.1, AWS D1.2, AWS D1.6 MINIMUM: PER AWWA D103-09 AWS - American Welding Society
4. TANK FREEBOARD IS MEASURED FROM TOP OF ROLLED TOP ANGLE TO TOP OF WATER LINE / WORKING CAPACITY

MATERIALS OF CONSTRUCTION:

CORRUGATED STEEL BOLTED WATER TANK

STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

FOUNDATION & STORAGE TANK NOTES:

1. The calculations provide for the structural design of all major tank components. Please contact Contain Water Systems Inc. for design of any structural component not specifically included within the calculations.
2. Contain Water Systems Inc. is not responsible for the design of any portion or component of tank that is not specifically included in the calculations and/or drawings.
3. Contain Water Systems Inc. shall be provided written notice and shall approve any modifications to the original tank including but not limited to (a) installation of additional openings; (b) modifications to openings; (c) attachments of equipment; (d) application of external or internal forces not included in the original calculations; (e) any other deviations from the original design intent.
4. Tank foundations shall be level, within 1/8" in any 30' circumference under the shell. levelness on the circumference shall not vary more than 1/4" from the established plane.
5. It is the customer's responsibility to ensure that proper tank ventilation is provided and maintained at all times.
6. Tank is to be supported on one of the foundation types described in AWWA D103.

ADDITIONAL NOTES:

Contain Water Systems Inc. submittal drawing process is to help eliminate the need for costly corrective measures in the design phase. This information will be submitted to the design team after the submittals are approved.

Contain Water Systems Inc. submittals - Materials of construction, Appurtenance location, Engineering design information, Design codes & General information. Customer to be notified if anything changes in the design phase.

SUBMITTAL REVISIONS:		DRAWN BY:	AP	07/15/24	CWSI		DESIGN PACKAGE	SHEET
		APPROVED BY:			SO#	01308		1
		SCALE:	NFS	containwatersystems.com				

CONTAIN
WATER SYSTEMS INC

WATER STORAGE TANK
GENERAL ARRANGEMENT

DRAWN BY:	AP				DESIGN PACKAGE	SHEET
APPROVED BY:	EK					2
SCALE:	NFS	containwatersystems.com				

TANK DIAMETER	EAVES HEIGHT	HEIGHT	CAPACITY
15'	18'4"	18'9"	23,980 GA

APPROVAL DRAWINGS

☐ Approved - Proceed with Manufacturing

☐ Comments Noted - Revise And Resubmit

Tank Foundation by others:

☐ Ring Wall Foundation

☐ Full Concrete Slab

Insulation

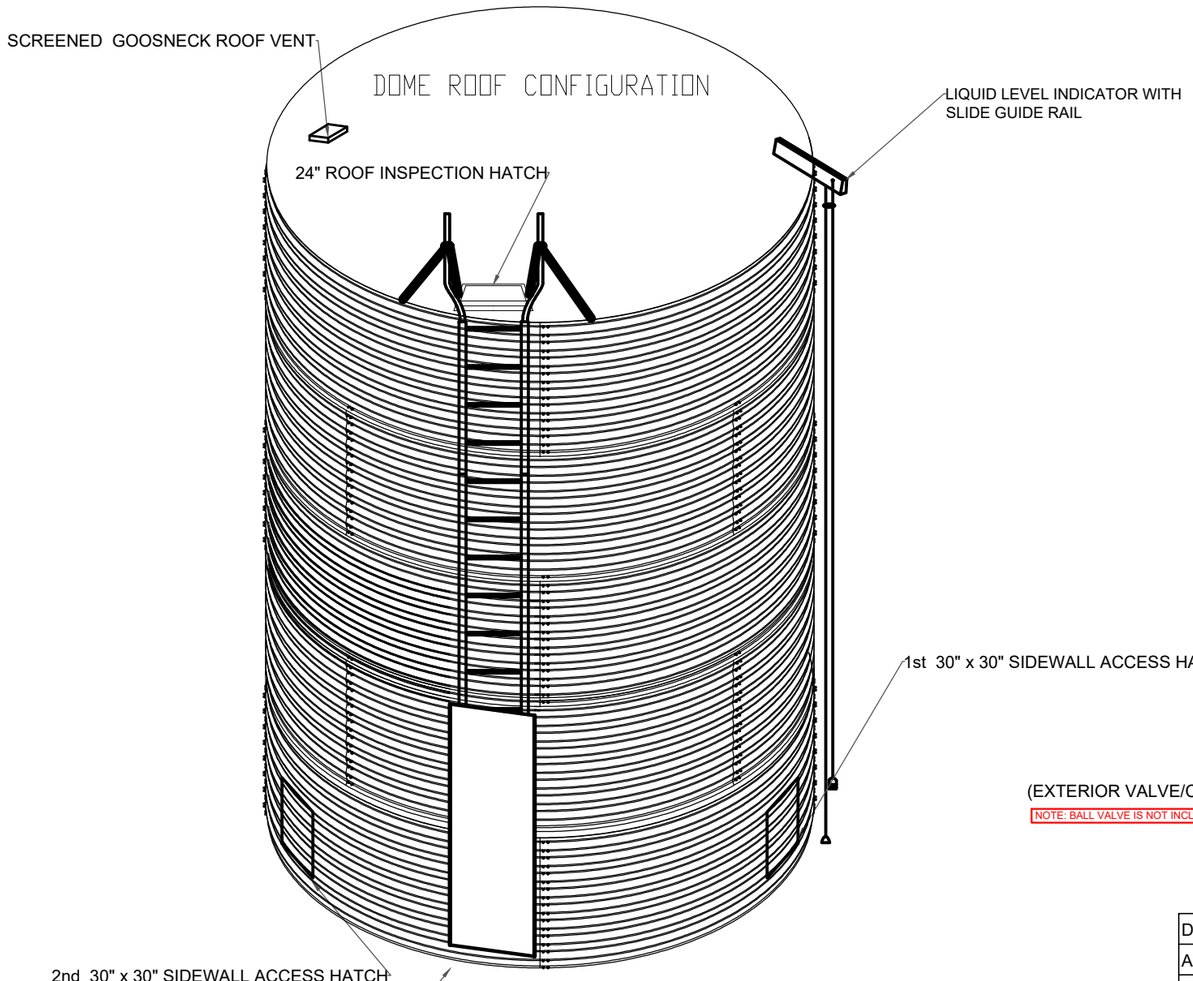
☐ Insulation by CONTAIN, Value R-16

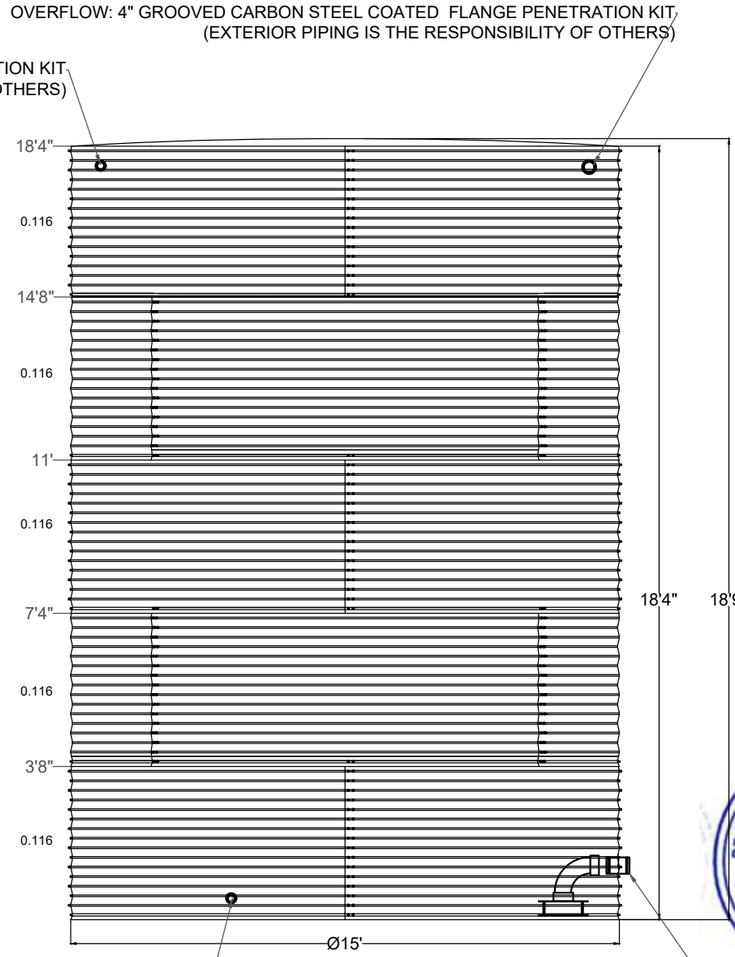
☐ Insulation by Others

☑ NO insulation

Full Name _____ Date _____

Please Mark and Return to Contain Water Systems





STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

DRAWN BY:	AP				WATER TANK PLAN AND DETAILS
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 3
containwatersystems.com					GENERAL ARRANGEMENT

CONTAIN WATER SYSTEMS INC

PROJECT DETAILS:

SO-

Tank Model CWSI -

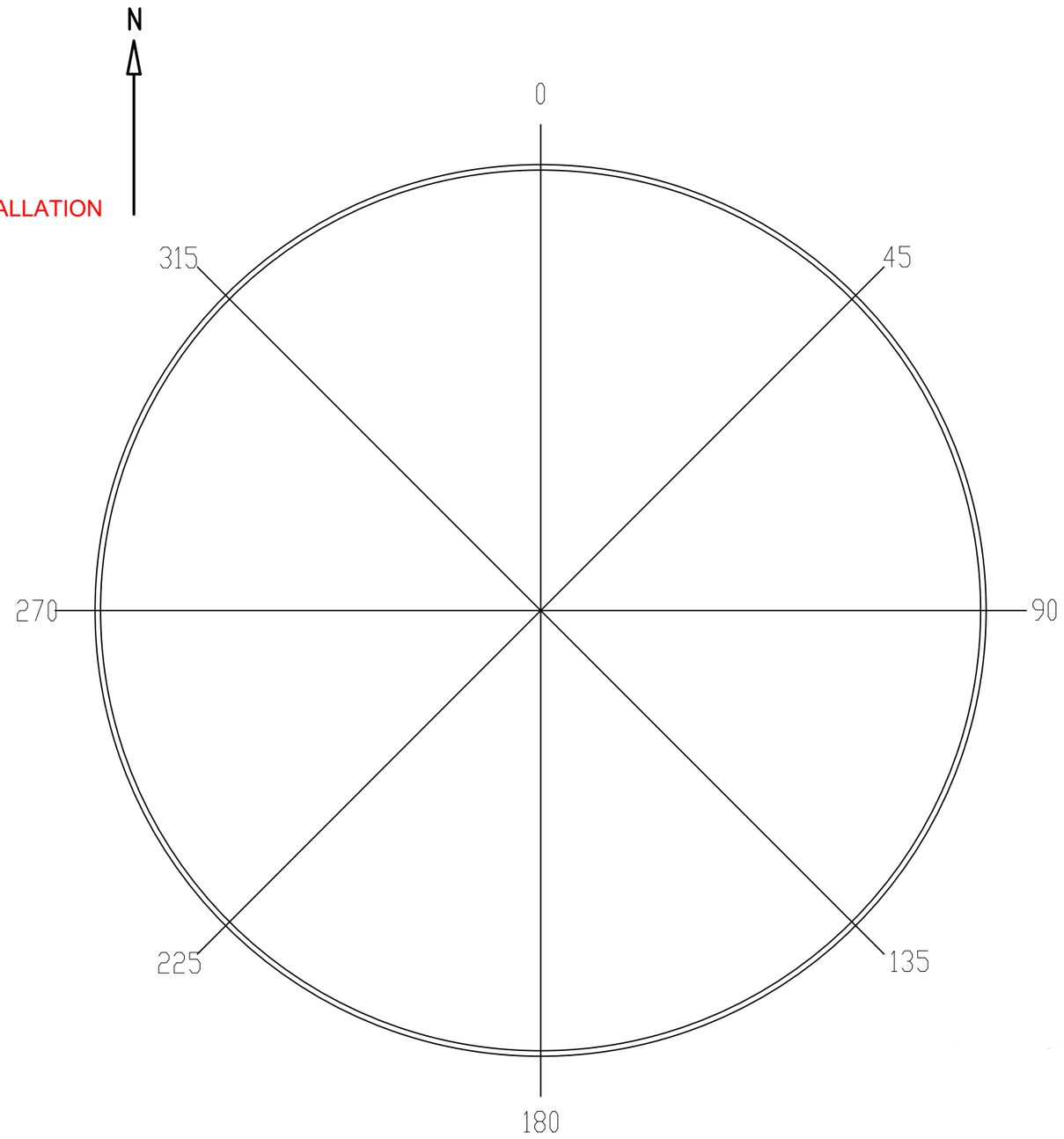
Tank Height excl. Roof:

TIER	TANK HEIGHT TO EAVE, FT	TIER	TANK HEIGHT TO EAVE, FT
1	3.67	6	22
2	7.34	7	25.67
3	11	8	29.34
4	14.67	9	33
5	18.34	10	36.67

NOTE: THIS PAGE TO BE APPROVED BY THE CLIENT 1-2 WEEKS PRIOR TO INSTALLATION

APPURTENANCES

ITEM	SIZE, TYPE	ORIENTATION	ELEVATION	NOTES
INLET			2' FROM TANK EAVES HEIGHT TO PORT CENTERLINE	
OUTLET			23" FROM GRADE TO PORT CENTERLINE	VORTEX ASSEMBLY, INCLUDING FLANGE
OVERFLOW			1' FROM TANK EAVES HEIGHT TO PORT CENTERLINE	
DRAIN			1' FROM GRADE TO PORT CENTERLINE	
ADDITIONAL FLANGE 1				
ADDITIONAL FLANGE 2				
ADDITIONAL FLANGE 3				
ADDITIONAL FLANGE 4				
INSPECTION HATCH, INT/EXT LADDER, BLOCK-OFF DOOR	STANDARD: BASED ON THE TANK HEIGHT		-	CLIENT TO LOCATE
HIGH/LOW SENSOR ALARM	FPT-61T 100FT			CLIENT TO LOCATE
HEATER WITH FLANGE	2" NPT + 2" COMP. FLANGE			CLIENT TO LOCATE
360 HANDRAIL	-	-	-	STANDARD - ROOF TOP
ROOF VENT	-	-	-	MANUFACTURER SELECTED LOCATION
LIQUID LEVEL INDICATOR	-	-	-	STANDARD - NEXT TO LADDER



APPROVAL DRAWINGS

☐ Approved - Proceed with Manufacturing

☐ Comments Noted - Revise And Resubmit

Full Name _____ Date _____

Please Mark and Return to Contain Water Systems

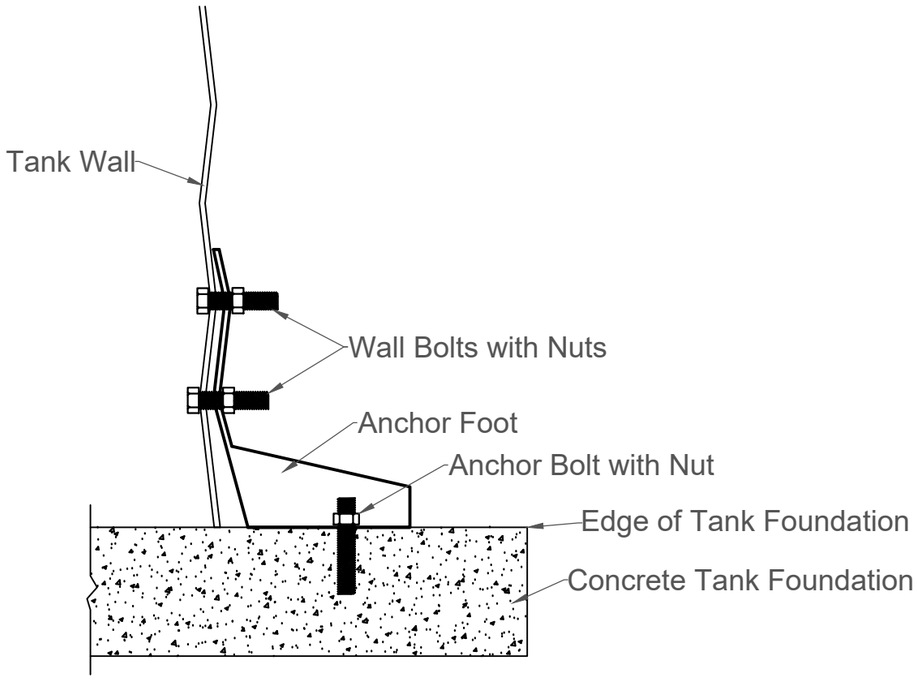
NOTES: THIS VIEW IS FROM TOP OF TANK LOOKING DOWN

ERECTION CREW TO VERIFY ZERO DEGREES ON SITE

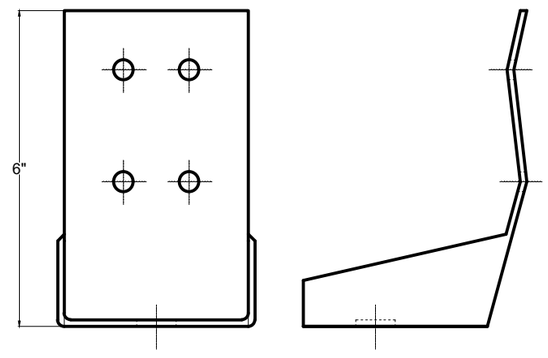
DRAWN BY:	AP				SUBMITTAL DRAWING. PLAN VIEW	SHEET
APPROVED BY:	EK					4
SCALE:	NFS	containwatersystems.com				

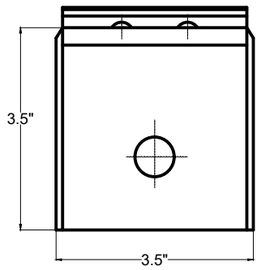
TANK ANCHOR FOOT AND FOUNDATION CONNECTION

ANCHOR CONNECTION TO TANK WALL AND CONCRETE SLAB



ANCHOR FOOT & BOLT DETAIL





ANCHOR BOLT SPECIFICATIONS:

QUANTITY:40
SIZE: 3/4" Ø F1554
GRADE: 36
NOTE: INSTALLED PER ESR-4057 MIN EMBED: 6"

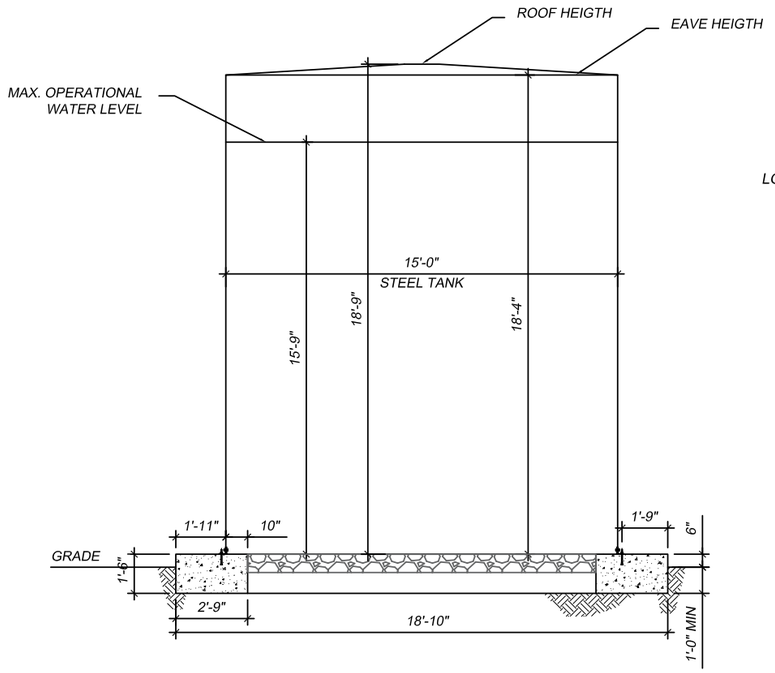
STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

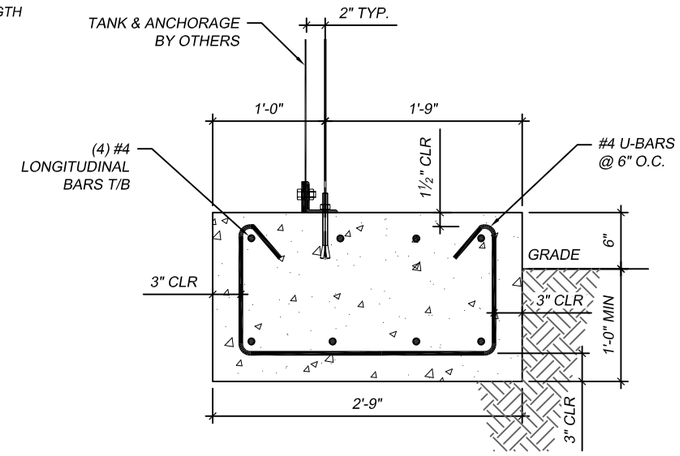
10/21/2024

DRAWN BY:	AP				TANK FOUNDATION DETAIL
APPROVED BY:	EK				
SCALE:	NFS				
					CONTAIN WATER SYSTEMS INC
containwatersystems.com					SHEET 5
					GENERAL ARRANGEMENT

TANK FOUNDATION DETAIL



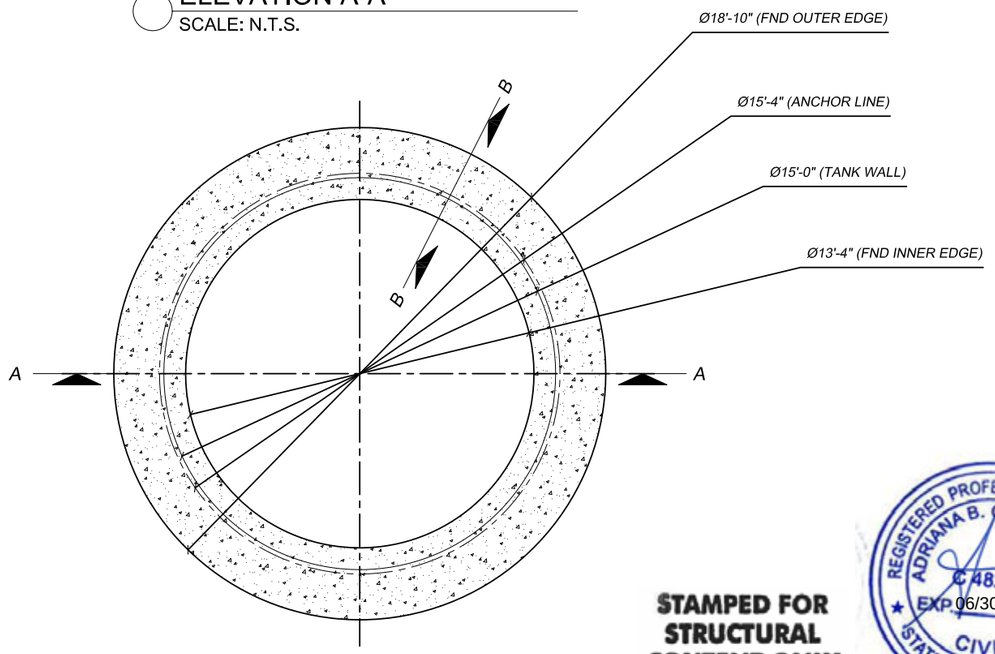
ELEVATION A-A
SCALE: N.T.S.



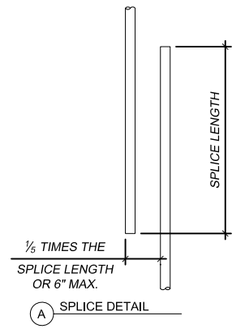
RING FOUNDATION SECTION B-B
SCALE: N.T.S.

NOTES:
1. *FOUNDATION TO BE POURED OVER NON-EXPANSIVE, FROST-FREE FILL.*
2. *ALL REBAR INTERSECTIONS TO BE TIED.*
3. *CONCRETE TO BE MIN 4000 PSI STRENGTH WITH 60 KSI REBAR.*
4. *MAINTAIN MINIMUM 40 DB SPLICE LENGTH FOR #4 BARS.*
5. *ALL ANCHORS TO BE POST-INSTALLED AND PROVIDED/DESIGNED BY OTHERS.*
6. *DESIGN NET ALLOWABLE SOIL BEARING PRESSURE IS 1500 PSF (2000 PSF W/ ⅓ CODE ALLOWABLE INCREASE FOR WIND/SEISMIC LOADING) PER TABLE 1806.2 OF IBC CODE SECTION 1806.*
7. *BACKFILL INSIDE THE RINGWALL, COMPACTION SHALL BE VERIFIED BY SPECIAL INSPECTION IN ACCORDANCE WITH SECTION 1705.6 OF IBC CODE. PROVIDE A MINIMUM 12" OF WELL-GRADED STRUCTURAL FILL SUBGRADE INSIDE THE RING-WALL, COMPACTED TO 95% STANDARD PROCTOR COMPACTION IN 6" LIFTS. COVER WITH 1" MINIMUM PEA-GRAVEL OR SAND TO PROTECT THE TANK LINER.*

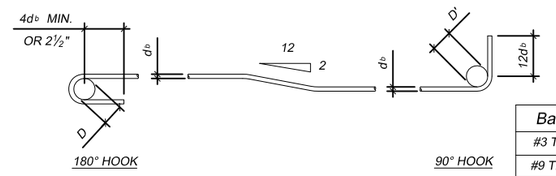
DESIGN CRITERIA					
DESIGN CODE: 2021 INTERNATIONAL BUILDING CODE MINIMUM DESIGN VALUES, RISK CATEGORY IV					
SEISMIC		WIND		HYDROSTATIC	
S_S	1.54	DESIGN SPEED	104 MPH	LIQUID HEIGHT	15'-9"
S_1	0.53	EXPOSURE	C	SUPERIMPOSED	
SITE CLASS	D-DEFAULT	TANK		ROOF LIVE LOAD	15 PSF
SDC	D	DIAMETER	15'-0"	SNOW	
LATERAL SYSTEM	MECHANICALLY ANCHORED	SHELL HT	18'-4"	GROUND SNOW LOAD	0 PSF
		ROOF HT	18'-9"		
		USE	STORAGE / FIRE		



FOUNDATION PLAN
SCALE: N.T.S.



A SPLICE DETAIL



B STANDARD HOOKS

Bar Size	D'
#3 THRU #8	6dᵇ
#9 THRU #11	8dᵇ
#14 THRU #18	10dᵇ

NOTES:
1. *ALL BENDS SHALL BE MADE COLD.*
2. *#14 AND #18 BARS SHALL BE BEND TESTED AND LAB APPROVED PRIOR TO BENDING.*

TYPICAL REINFORCING BAR SPLICE AND BENDS
SCALE: N.T.S.

STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

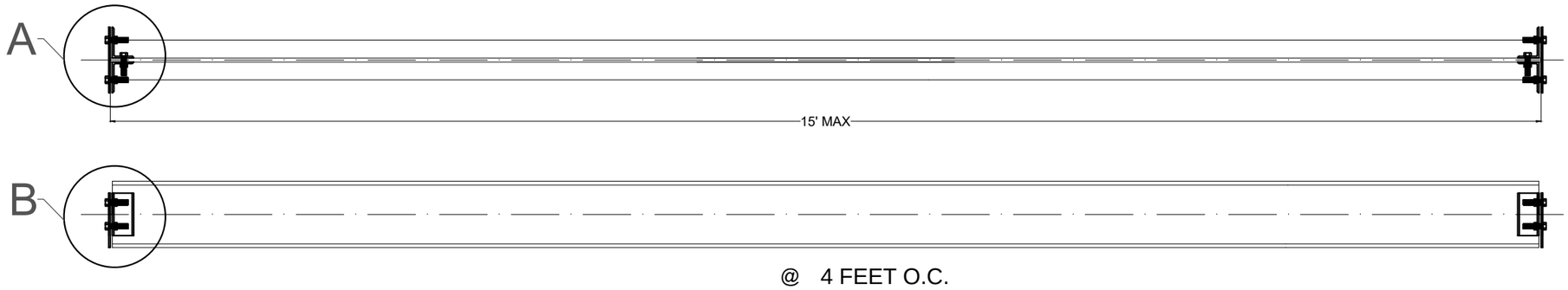
DRAWN BY:	AP				TANK FOUNDATION DETAIL
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET
PROJECT #:					5A
MODEL:					CONTAIN WATER SYSTEMS INC
LOCATION:					GENERAL ARRANGEMENT
containwatersystems.com					

CONTAIN
WATER SYSTEMS INC

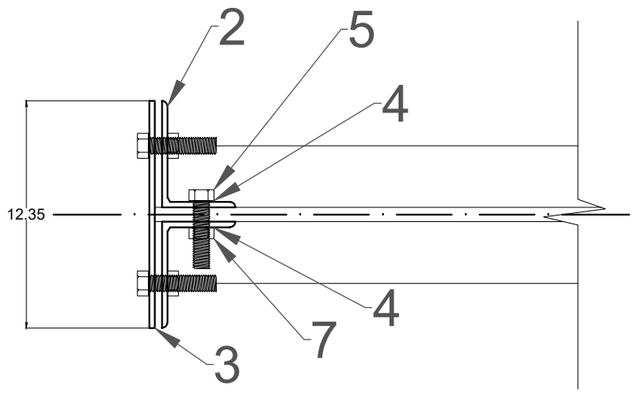
WATER STORAGE TANK
SHOP DRAWINGS

DRAWN BY:	AP				WATER STORAGE TANK SHOP DRAWINGS	SHEET
APPROVED BY:	EK					6
SCALE:	NFS	containwatersystems.com				

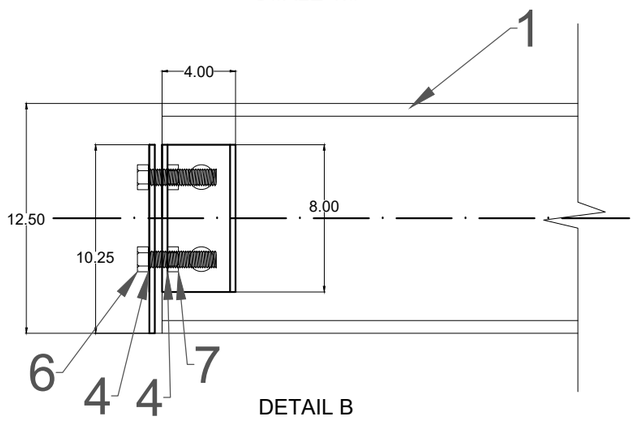
DOME ROOF BEAM DESIGN



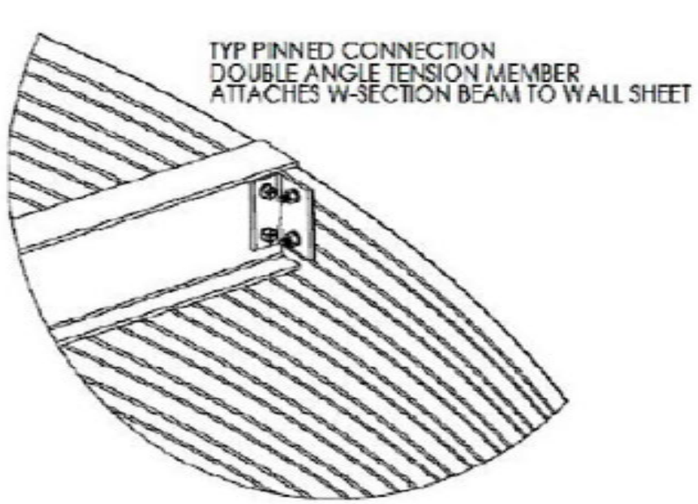
@ 4 FEET O.C.



DETAIL A
SCALE 1:3



DETAIL B
SCALE 1:3



STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

ROOF LOADS:	
DL	10
LR	15
SNOW	0
WIND	22

MATERIAL CHART			
ITEM #	QUANTITY	DESCRIPTION	MATERIAL
1	3	W8X15 X 15 FEET	ASTM A992 GR.50
2	4 PER BEAM	L-ANGLE 6"X4"X½"	ASTM A572 GR. 50
3	2 PER BEAM*	PLATE ½"	ASTM A572 GR. 50
4	36	WASHER FLAT SAE .75"	ASTM A325
5	6	BOLT. HEAVY HEX 3/4"-10X2-3/4"LG	ASTM A325
6	12	BOLT. HEAVY HEX 3/4"-10X2-3/4"LG	ASTM A325
7	18	NUT HEAVY HEX ¾" -10	ASTM A193

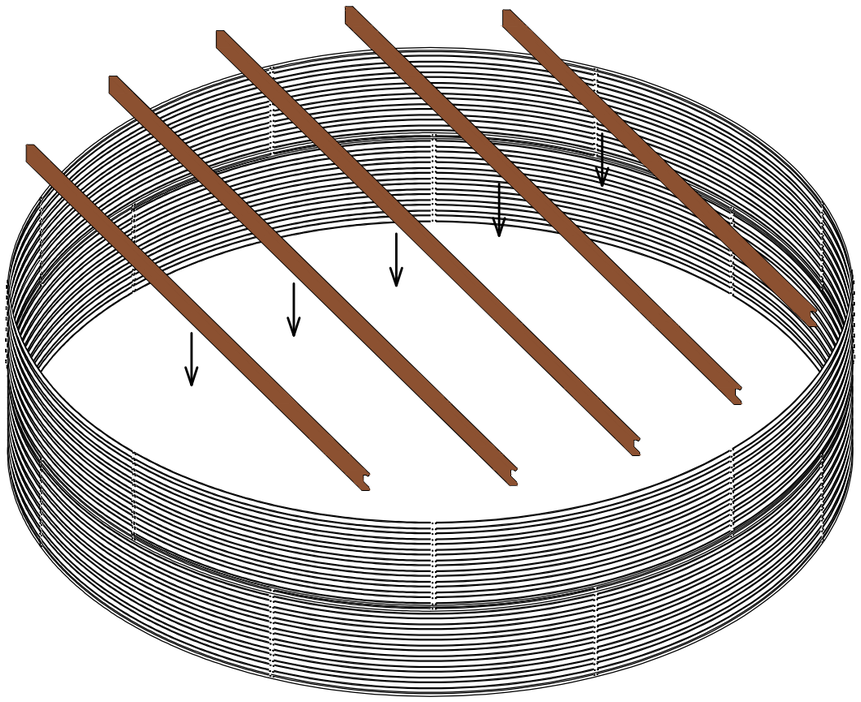
DRAWN BY:	AP				BEAM DESIGN
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET
					7
					SHOP DRAWINGS
containwatersystems.com					

CONTAIN WATER SYSTEMS INC

DOME ROOF DECK DESIGN

NOTES:

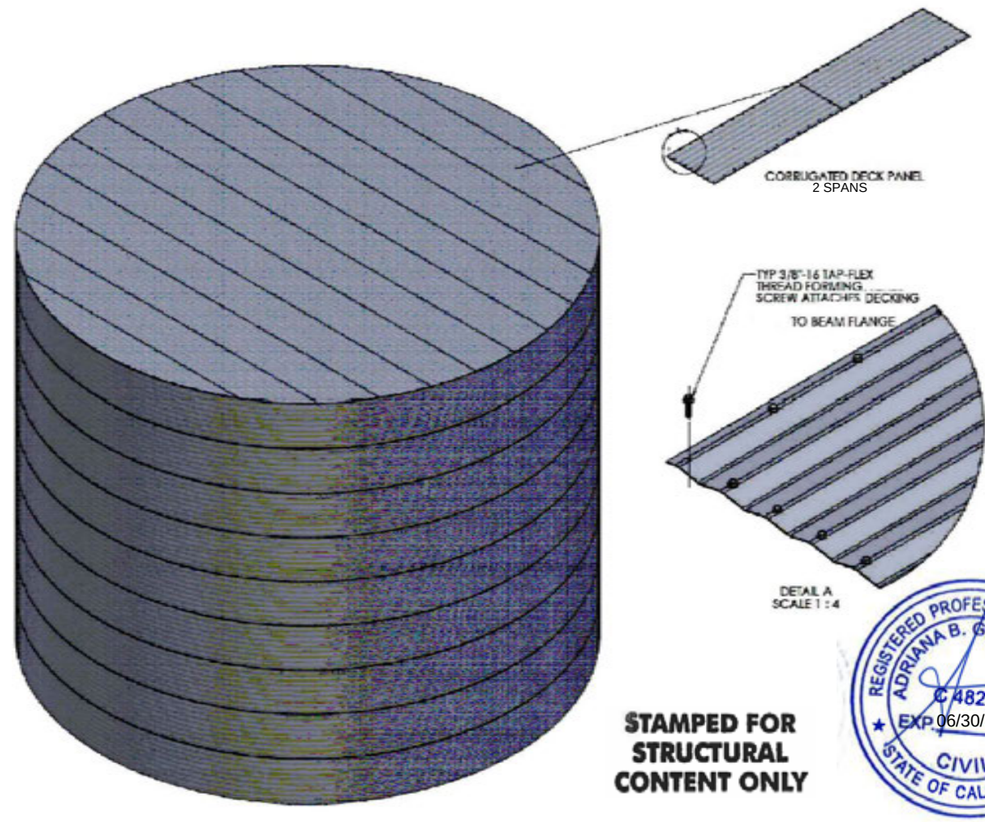
- BEAM QUANTITY AND SPACING SUBJECT TO CHANGE PER PROJECT
- ROOF DECK TYP .14 ga @ 50KSI ASTM A653 SS GR. 40 W/ 3/8" Tap-Flex Screws or similar @ 12 in o.c. max



STEEL BEAM LAYOUT

All water tank decking materials shall be manufactured using high strength galvanized steel. The minimum coating thickness shall be G115. Decking sheets are continuous 4” pitch x ½” depth corrugated galvanized steel with a minimum yield strength of 40,000 psi and a minimum tensile strength of 55,000 psi.

Decking sheets are manufactured from G115 galvanized steel conforming to ASTM A653. Decking sheets have a 44” nominal coverage. Decking sheets have a coverage length of 9' 4-1/2” long. The decking sheets are connected with self tapping screws drilled into deck beams and over laying panels.



STAMPED FOR STRUCTURAL CONTENT ONLY

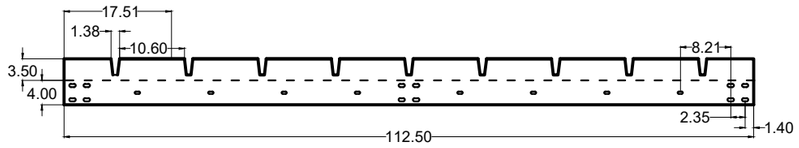
REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

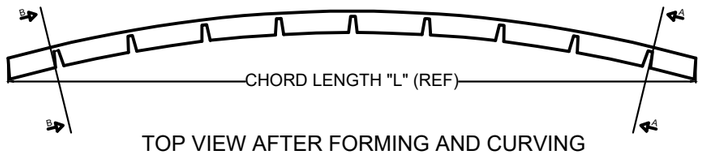
DRAWN BY:	AP				TRUSS DESIGN, ROOF DECK DESIGN
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 8
containwatersystems.com					SHOP DRAWINGS

CONTAIN WATER SYSTEMS INC

TOP BRACKET

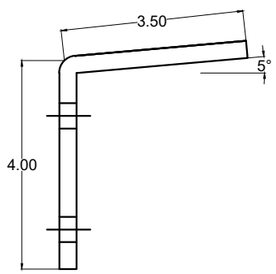


BLANK (212241)

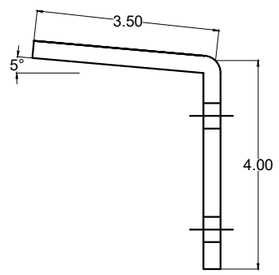


TOP VIEW AFTER FORMING AND CURVING

SERIES	PART #	L	BUNDLE#	QTY/ BUNDLE	WT.(LBS)	SERIES	PART #	L
12'	212243	101.2				48'	212255	111.5
15'	212244	105.1	212271	5	49.0	51'	212256	111.6
18'	212245	107.3	212273	6	58.8	54'	212257	111.6
21'	212246	108.6	212274	7	68.6	60'	212258	111.7
24'	212247	109.4	212275	8	78.4	66'	212259	111.8
27'	212248	110.0	212276	9	88.2	72'	212260	111.9
30'	212249	110.4				78'	212261	111.9
33'	212250	110.7				84'	212262	112.0
36'	212251	111.0				90'	212263	112.0
39'	212252	111.1				96'	212264	112.0
42'	212253	111.3				102'	212265	112.0
45'	212254	111.4				108'	212266	112.0



SECTION B
TRAILING END
NOT FOR SCALE



SECTION A
LEADING END
NOT FOR SCALE

ROOF TO EAVES CONNECTION SEAL

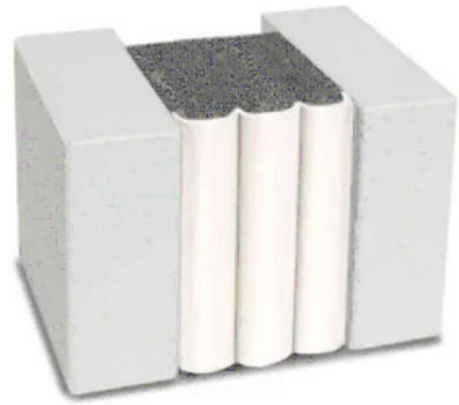
This sealing solution is designed to address the need for effective insect protection in areas susceptible to pest ingress, such as the gaps between roof eaves and tank wall angles.

Specification:

NSF/ANSI Standard-61 Compliant

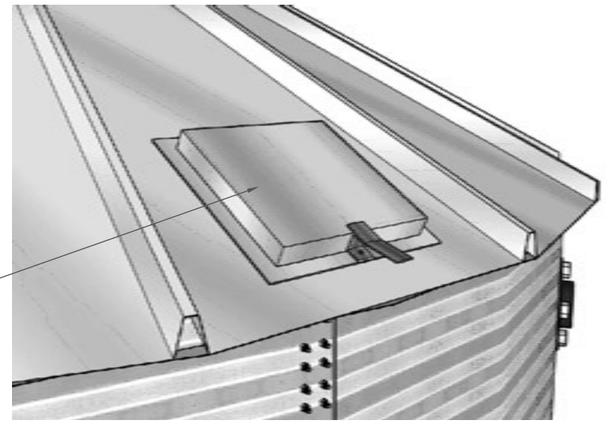
FDA Regulation CFR 177.2600 Compliant
Silicone-Coated, Structural Expansion

DSF by EMSEAL SECTION 07 90 00 and 07 95 00 (formerly 05810 / 07102 I 7915 - SEALANTS, CAULKING, SEALS)

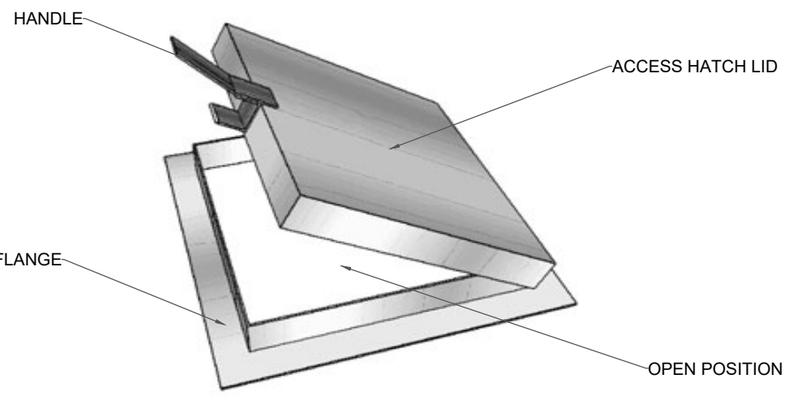


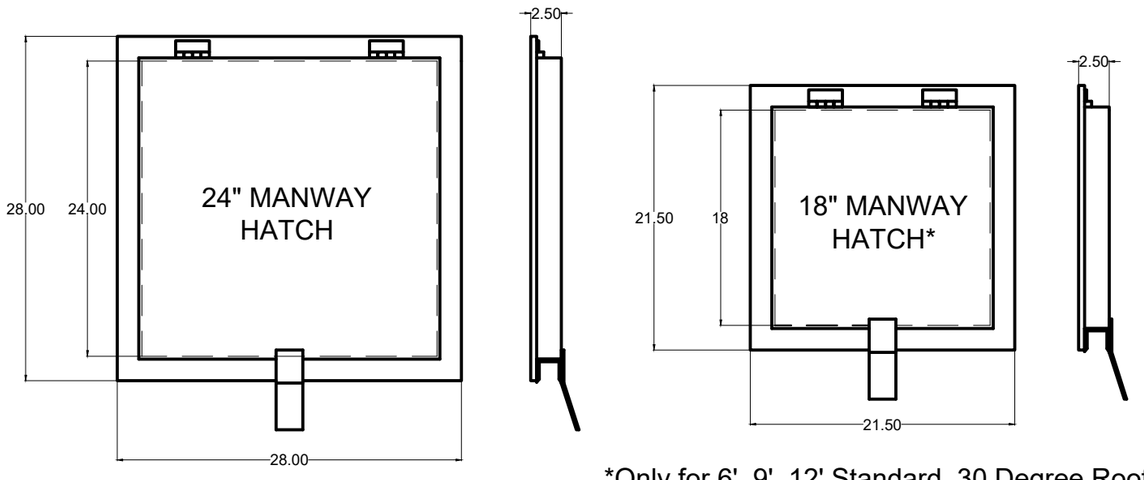
DRAWN BY:	AP				TOP BRACKET. EAVES CONNECTION SEAL
APPROVED BY:	EK				
SCALE:	NFS				
					CONTAIN WATER SYSTEMS INC
containwatersystems.com					SHEET 9
					SHOP DRAWINGS

MANWAY HATCHES. ROOF VENT



24" MANWAY HATCH





*Only for 6', 9', 12' Standard, 30 Degree Roofs

50 sq. in. Net Free Area
Aluminum Roof Vent

SPECIFICATIONS

Dimensions:

Depth 16.75 in
Height 4 in
Width 15 in

Details:

Material - Aluminum
Color/Finish - Metallic
Mounting Position - Roof Mount
Features - UV Resistant
Screen Included

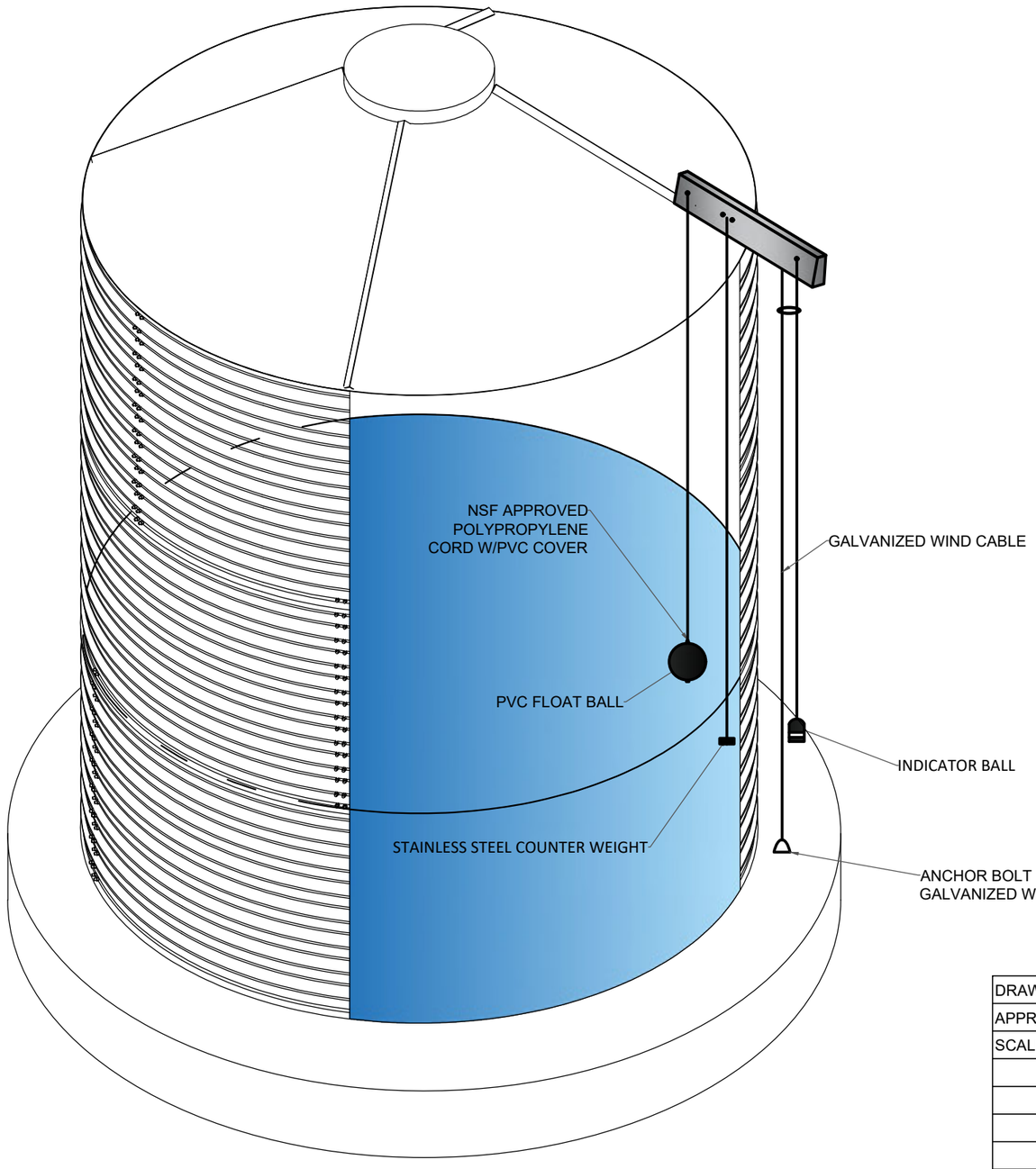
Aluminum construction ensures corrosion resistance

Helps exhaust heat and moisture
Vent screen keeps birds and large insects from entering the tank

ROOF VENT

DRAWN BY:	AP				ROOF VENT MANWAY HATCH
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 10
containwatersystems.com					CONTAIN WATER SYSTEMS INC SHOP DRAWINGS

LIQUID LEVEL INDICATOR W / SITE WIRE GUIDE



The Liquid Level Guide Wire System consists of a single stainless-steel cable between the upper frame and the ground, leaving the indicator clearly visible.

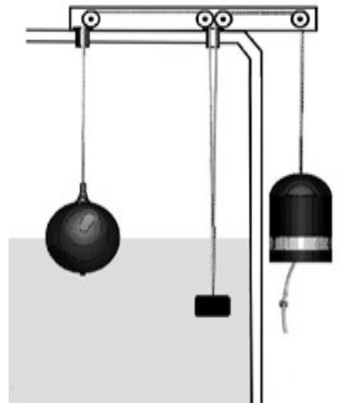
How it Works:

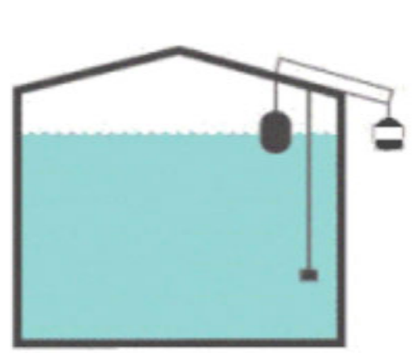
The weighted float and indicator are connected to the counterweight by separate cords, each cord running over a pair of pulleys. When the float is half-immersed, everything is balanced.

Rising liquid level lifts the float up, the counterweight moves down, and the indicator keeps pace with the float.

Falling liquid levels causes the weighted float to pull the counterweight up, and again, the indicator keeps pace with the float.

At all times the indicator matches the liquid level exactly, even when installed at an angle.

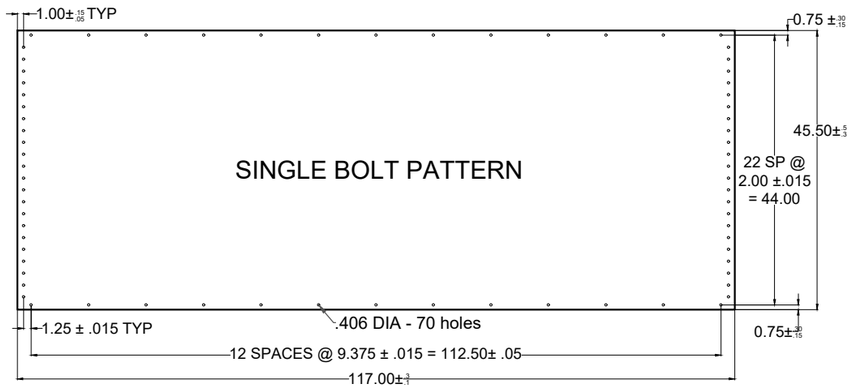


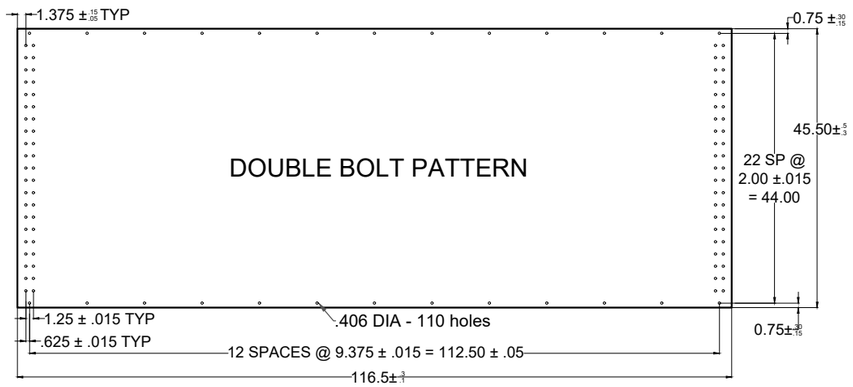


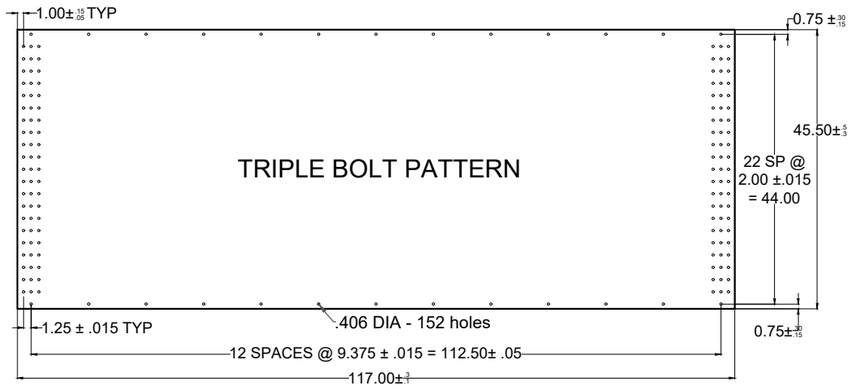
DRAWN BY:	AP				LIQUID LEVEL INDICATOR
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 11
containwatersystems.com					SHOP DRAWINGS

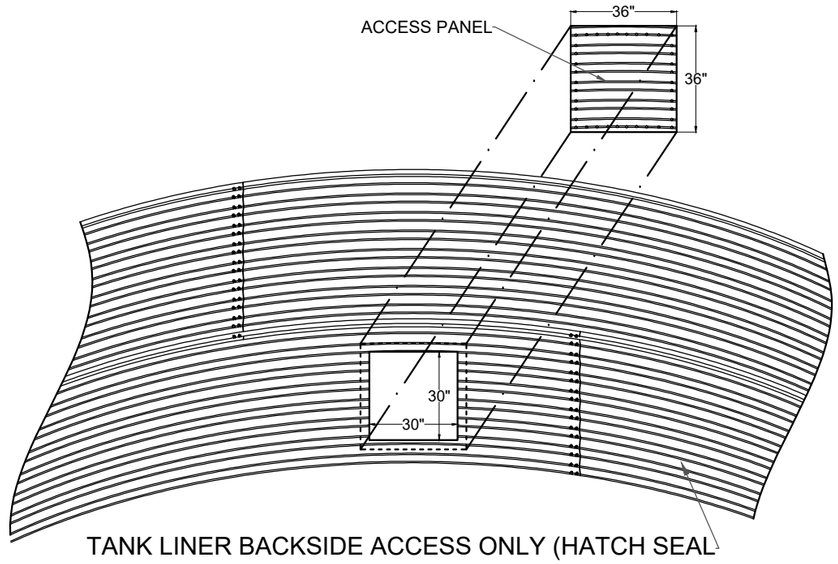
CONTAIN WATER SYSTEMS INC

WALL PANELS. SIDEWALL ACCESS HATCH DOOR 30" X 30"









TANK LINER BACKSIDE ACCESS ONLY (HATCH SEAL DOES NOT HAVE DIRECT CONTACT WITH THE WATER)

Wall sheet materials shall be manufactured using high strength graded galvanized steel. The minimum coating thickness shall be G115.

Wall sheets are continuous 4” pitch x ½” depth corrugated galvanized steel with a minimum yield strength of 40,000 psi and a minimum tensile strength of 55,000 psi for 20 and 18 gauge sheets.

All heavier gauges have a minimum yield strength of 50,000 psi and a minimum tensile strength of 65,000 psi.

The wall sheets are manufactured from G115 galvanized steel conforming to ASTM A653. Wall sheets have a 44” nominal coverage.

Wall sheets have a coverage length of 9' 4-1/2” long. The wall sheets are connected with GR8.5 bolts along both the vertical and horizontal seams.

Vertical seams are punched for a staggered, double, triple or quad row connection at 2” on center. Horizontal seams are a single lap connection with spacing of 9-3/8”.

MATERIAL SPECIFICATION							
THICKNESS		WALL SHEET		STENSIL SHEET			WEIGHT (LB)
NOMINAL	MINIMUM	FLAT	FINISHED	LOGO	FLAT	FINISHED	
0.040	0.036	194679	199200	CARIBBEAN	194628	199559	58.3
0.050	0.045	194680	199201	CARIBBEAN	194629	199560	72.8
0.057	0.052	194681	199202	-	-	-	83.0
0.066	0.061	194682	199203	-	-	-	97.7
0.076	0.070	194683	199204	-	-	-	112.2
0.096	0.088	194684	199205	-	-	-	141.1
0.116	0.107	194685	199206	-	-	-	171.4
0.126	0.117	194606	199209	-	-	-	189.0
0.139	0.130	194607	199210	-	-	-	209.4
0.168	0.159	194608	199211	-	-	-	252.1

DRAWN BY:	AP				WALL PANELS. SIDEWALL ACCESS HATCH DOOR 30" X 30"
APPROVED BY:	EK				
SCALE:	NFS				
					CONTAIN WATER SYSTEMS INC
containwatersystems.com					SHEET 12
					SHOP DRAWINGS

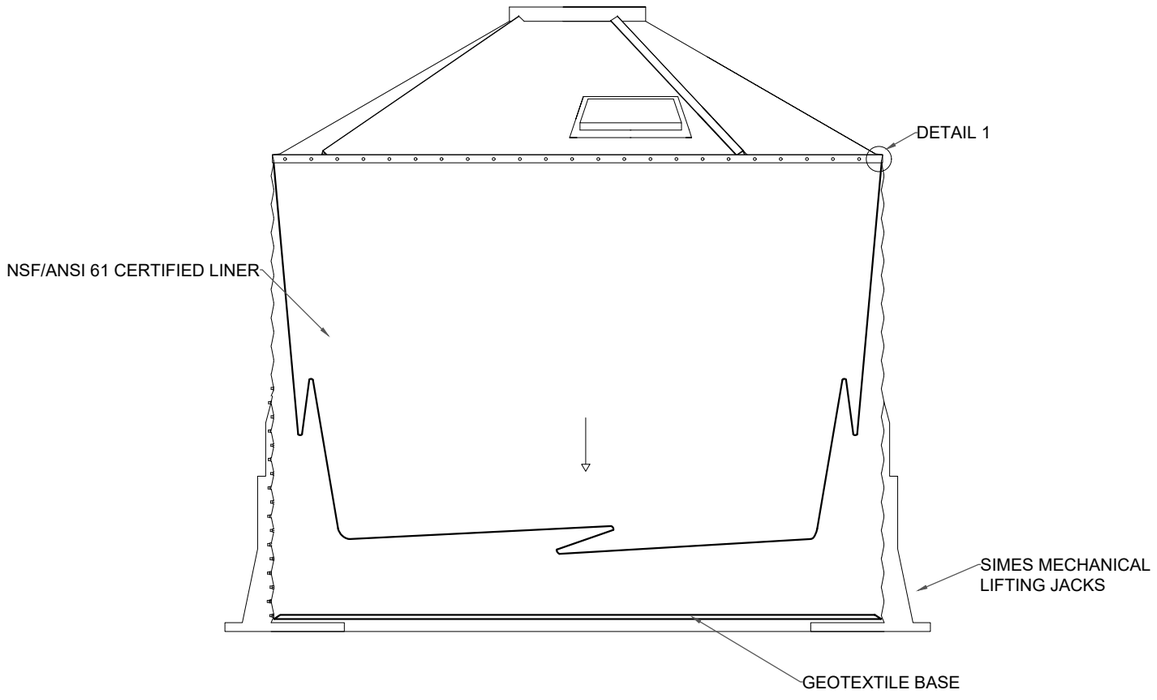
TANK LINER INSTALLATION

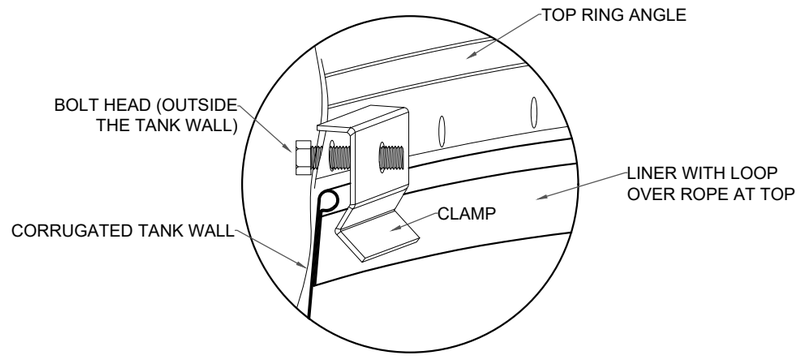
Installation Process:

After the first wall sheet ring, roof, and liner claps are assembled and tightened, and while the top of the wall can still be accessed from the ground, begin attaching the liner.

Unfold the liner and locate the top edge with the rope welded into it. Insert the top edge under the liner clamp so that the rope is completely pushed up past the "V" in the bracket. Snug up the nut to secure it in place, but do not completely tighten. Proceed with installing the liner around the tank by inserting it under the clamps and lightly tightening the nuts. Do not pull the liner tight between the clamps; leave a slight and consistent excess. Periodically check the remaining liner against the remaining wall distance to determine if more or less wrinkle should be left between the liner clamps. Once the liner is installed and evenly spaced between the clamps, tighten the nuts so that the clamps securely capture the liner against the wall, and it cannot be pulled free.

After the tank is erected to full height, enter the tank through the last unattached wall sheet section and pull the hanging seam string on the liner. This will detach the liner from the accordion walls, allowing the liner to fall into their proper final positions.





DETAIL 1

After the liner has fallen, walk the perimeter between the bag and the tank wall, pulling the liner close to the bottom inside corners. Ensure that the liner is left a couple of feet from the wall so that the tank can be lowered safely without pinching and damaging the liner. At this point, the final wall sheet should be installed, and it is recommended that the tank be lifted high enough for a person to enter under the wall for these final steps.

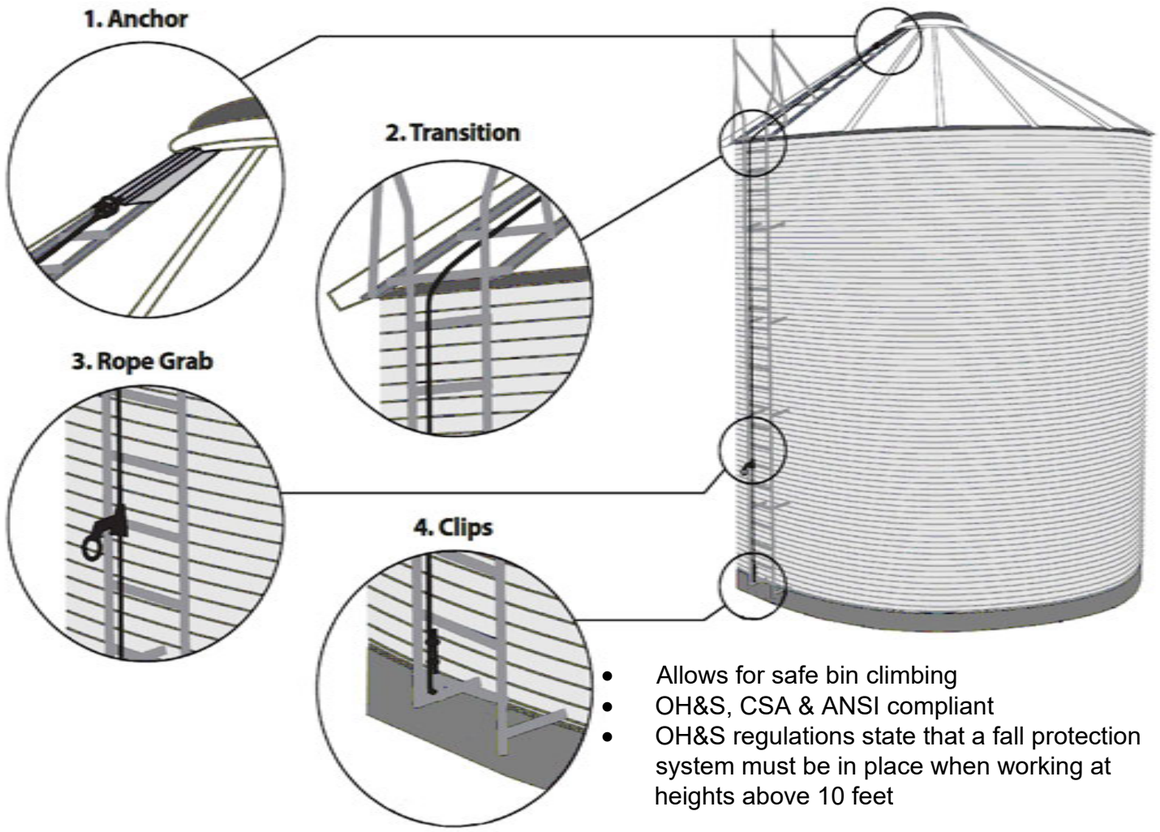
Place some form of blockage under each sheet to shore up the tank for this phase. Finally, lower the tank into place and secure it. Once the tank is secured, it may be necessary to enter the tank to make final liner adjustments, install inlets and outlets, etc. A ladder with protected feet can be lowered through the inspection hatch. Be sure to wear gear that will not damage the liner. Push the excess liner towards the wall and create a wrinkle in the corner as shown."

Installation of the textile now involves a revised approach to enhance the protection of the liner from potential damages. The textile is placed directly on this foundation. This placement acts as a protective layer beneath the liner, safeguarding it against punctures, abrasions, or any other forms of damage that might arise from direct contact with the underlying surface.

The water storage tank geo-textile pad is installed underneath the liner at the base of the tank. The geo-textile pad provides a layer of protection for the geomembrane watertight liner. The geotextile pad safeguards the geomembrane liner against punctures, abrasions, or any other forms of damage that might arise from direct contact with the underlying surface.

DRAWN BY:	AP				TANK LINER INSTALLATION
APPROVED BY:	EK				
SCALE:	NFS				
					CONTAIN WATER SYSTEMS INC
containwatersystems.com					SHEET 13
					SHOP DRAWINGS

FALL ARREST. BIN SAFE SYSTEM



- Allows for safe bin climbing
- OH&S, CSA & ANSI compliant
- OH&S regulations state that a fall protection system must be in place when working at heights above 10 feet

FALL PREVENTION IS ONLY REQUIRED ON TANKS 24' AND TALLER

PARTS LIST
1 – Protecta Universal Harness
1 – 4’ Lanyard with built in energy absorber
1 – Static Wire Rope Grab
1 – Instruction Manual

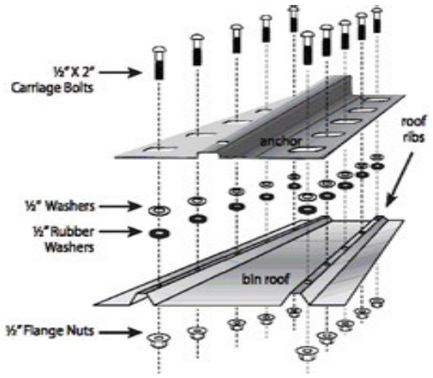
Instructions for use
Medical Requirements:
All persons using this system should be medically fit to sustain Fall Arrest forces of up to 1800 lbs while wearing a full body harness. Unless a medical professional has examined them and deemed them adequately fit to sustain these forces, the following people should not be involved in work requiring them to use Fall Arrest equipment and systems:

- People with weak or previously injured backs
- Pregnant women
- Workers whose body weight is not within limits that the equipment or system is certified for use

User Awareness:
All users of Fall Arrest systems and equipment must be trained to recognize fall hazards and how to properly inspect and use the equipment and systems.

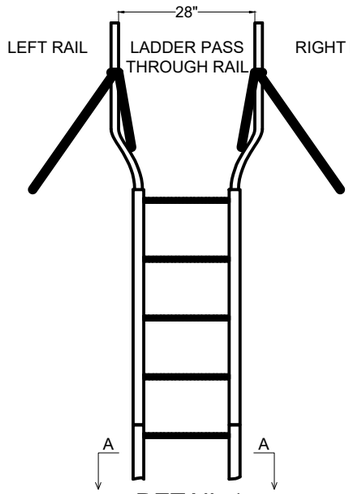
Emergency Response Rescue Plan:
No work requiring the use of this fall arrest system should proceed until a complete emergency response
plan is in place to address evacuation of injured workers that may be suspended several feet off the ground.
The plan must take into account the fact that an injured worker may not be conscious after a fall.

Climbing instructions:
1. Following the manufacturer’s instructions provided with the wire rope grab, attach the grab to the wire rope. If you have multiple systems, a single rope grab can be moved from system to system as needed. Important: Ensure that the rope grab is installed in the proper orientation (with the up arrow pointing up). Failure to do so could result in injury or death.
2. Properly don the provided fall protection harness. Attach the snap hook (at the label end of the lanyard) to the dorsal (back) D-Ring on the harness and connect the other snap hook to the wire rope grab as per manufacturer’s instructions provided. Users are to only grab the lever, not the body of the traveler when climbing the ladder.
3. Very Important Safety Note: While climbing a ladder with this fall arrest system, **the user must keep the rope grab as high on the rope as possible at all times (the rope grab should never be below the user’s Dorsal D-ring).** This will minimize free fall, and decrease the chances and severity of injury to the user in the event of a fall. Users are to maintain three points of contact at all times when ascending or descending the ladder.
4. This system is designed for one (1) user. The total weight of a user (including any tools and clothing) must NOT exceed 254 lbs. Users between 254 and 310 lbs may use the system provided they contact point of sale and obtain an energy absorbing lanyard that is suitable for their weight.
5. The system is intended for use as a fall arrest system; it may not be used for any other function.
6. When not in use, the rope grab should be removed from the system and stored, according to the instructions in section 3 of “Equipment Use and Inspection” in this document.

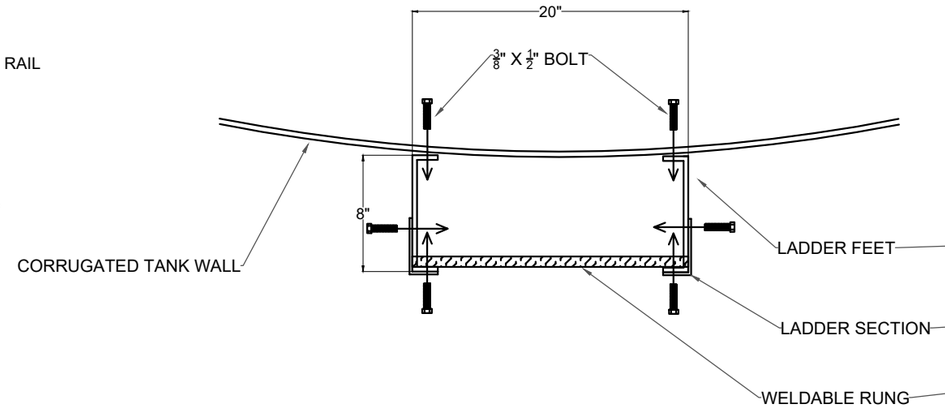


DRAWN BY:	AP				FALL PREVENTION SYSTEM
APPROVED BY:	EK				
SCALE:	NFS				
					CONTAIN WATER SYSTEMS INC
containwatersystems.com					SHEET 14
					SHOP DRAWINGS

EXTERIOR WALL LADDER WITH BLOCK-OFF ASSEMBLY



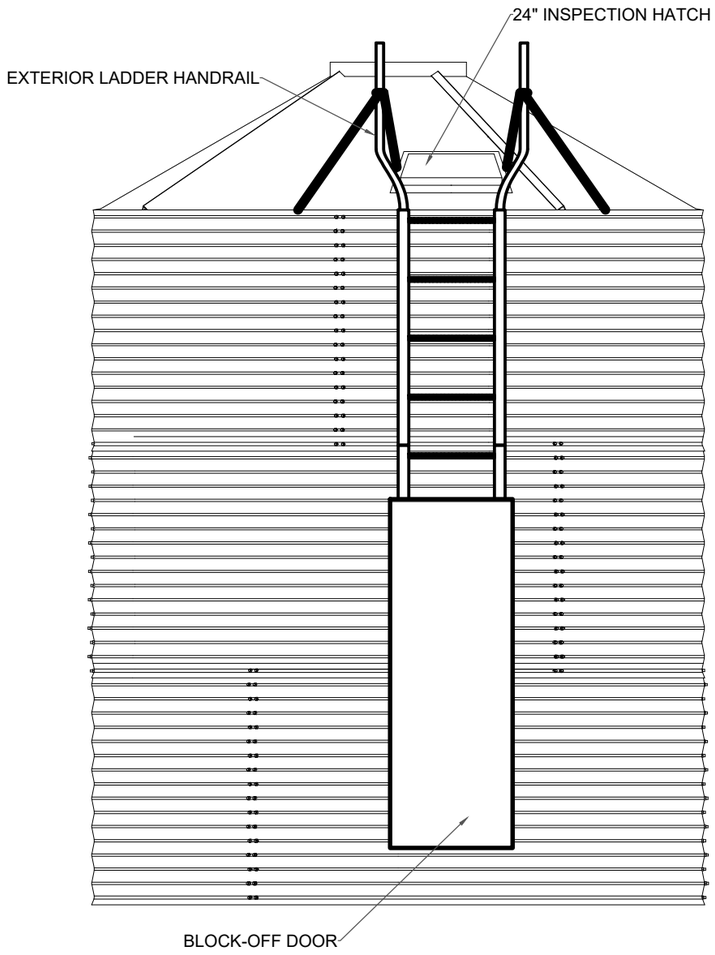
DETAIL 1
HANDRAIL

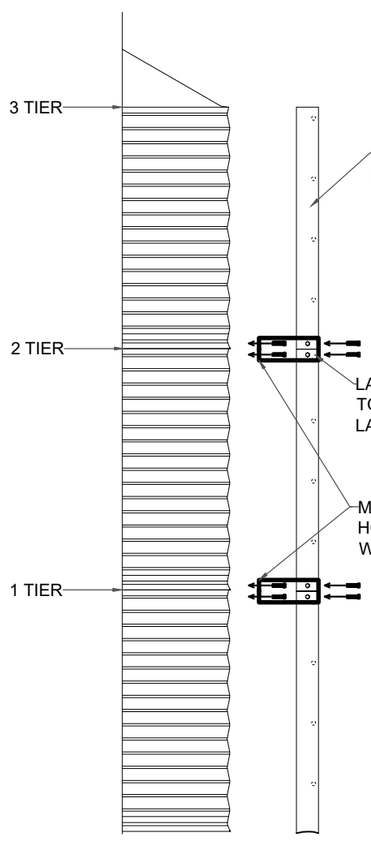


SECTION A-A

NOTES:
THIS IS A TYPICAL SUBMITTAL DETAIL COMPLIES WITH OSHA STANDARDS - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

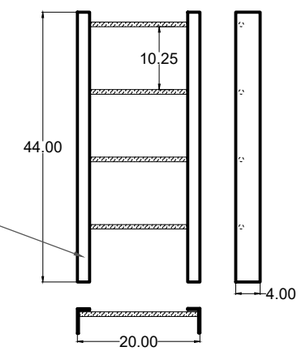
3-D VISUALIZATION OFF
LADDER CONNECTION TO TANK WALL



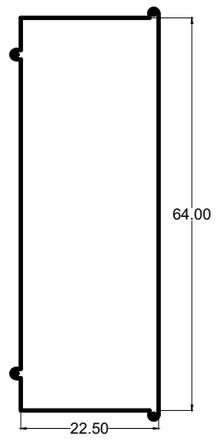


DETAIL 2
LADDER CONNECTION TO THE TANK

44" LADDER SECTION



BLOCK-OFF DOOR ASSEMBLY



BLOCK-OFF DOOR primary purposes:

Security: The block-off door acts as a barrier to deter or prevent vandals, unauthorized personnel, or animals from climbing the ladder and gaining access to the top of the tank, where they could potentially damage the tank.

Safety: It can also serve as a safety measure to ensure that only qualified and authorized individuals with the proper key can use the ladder, reducing the risk of accidents or injuries.

Controlled Access: During maintenance operations, the block-off door can be used to control access to the ladder, ensuring that only the maintenance crew can enter the tank at scheduled times.

LADDER MATERIALS:
LADDER STRAP TO BE: GR36 FLAT BAR
LADDER RUNGS TO BE: 3/4" Ø WELDABLE REBAR

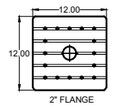
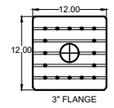
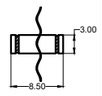
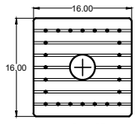
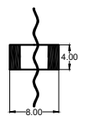
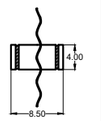
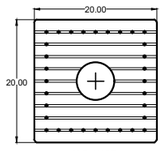
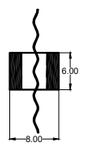
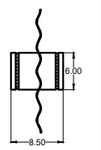
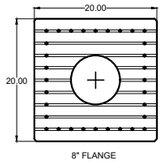
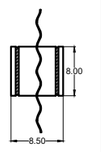
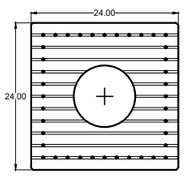
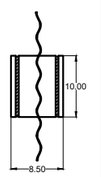
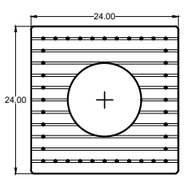
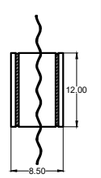
CLIMB PREVENTION DOOR MATERIALS:
LADDER BLOCK-OFF DOOR AND HINGES: GR40 PLATE

DRAWN BY:	AP				EXTERIOR WALL LADDER WITH BLOCK-OFF ASSEMBLY
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 15
containwatersystems.com					SHOP DRAWINGS

CONTAIN WATER SYSTEMS INC

FLANGE, VORTEX CHARTS. FLOOR FLANGE DETAIL

Victaulic & NPT Flange Chart

NPT/GROOVED FLANGES FRONT VIEW	NPT FLANGES SIDE VIEW	GROOVED FLANGES SIDE VIEW
		NOT PRODUCED BY CWS
		
		
		
	NOT PRODUCED BY CWS	
	NOT PRODUCED BY CWS	
	NOT PRODUCED BY CWS	

CWS Anti Vortex Kits are in accordance with NFPA 22 guidelines.

Includes: High strength carbon steel plate (ASTM graded steel) w/ epoxy coating per section 14.2.13*

High strength carbon steel plate (ASTM graded steel) attaches the vortex elbow to the water storage tank suction outlet flange penetration kit per section 14.2.13.1

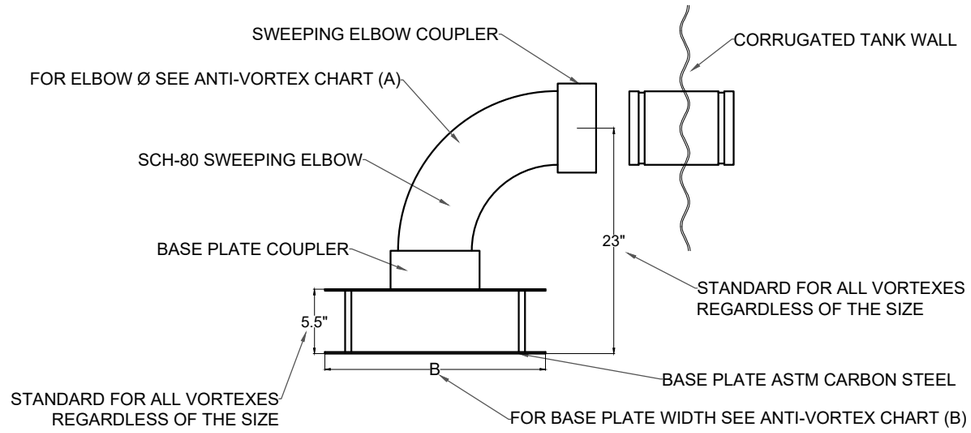
SCH80 long radius elbow fitting, mounted at the outlet a distance above the bottom of the tank @ 21" O.C.

ANTI-VORTEX SIZE CHART		
FLANGE SIZE	A ELBOW Ø	B BASE PLATE
2'	2'	12" X 12"
3'	3'	12" X 12"
4'	4'	16" X 16"
6'	6'	16" X 16"
8'	8'	21" X 21"
10'	10'	21" X 21"
12'	12'	21" X 21"

CWS Flange penetration kits come with either a NPT threaded nipple or a grooved nipple. Please see the chart on this page and your GA drawing page to confirm your project selection.

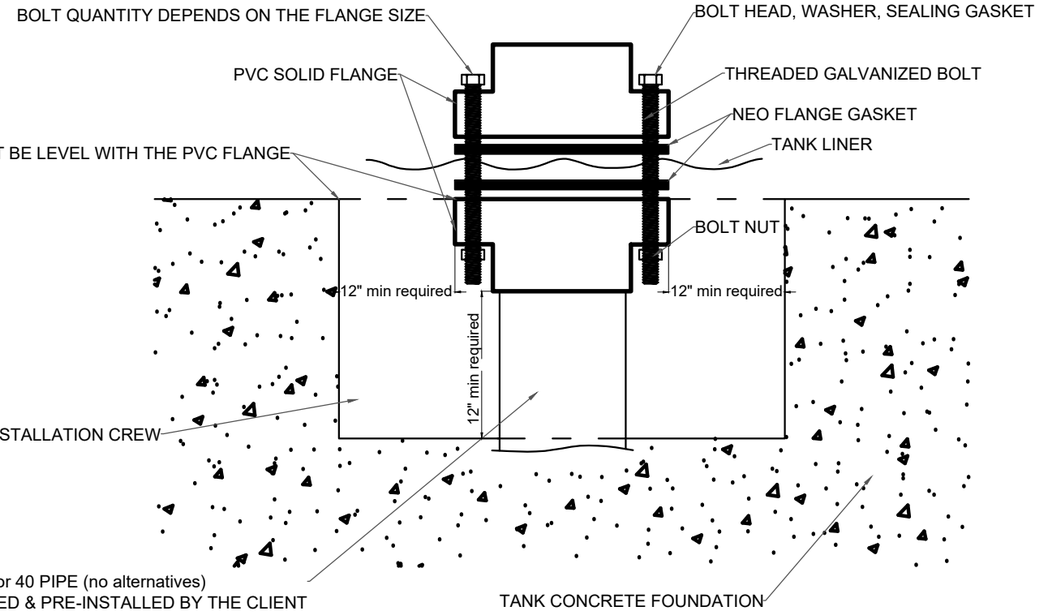
Includes: High strength carbon steel plate (ASTM graded steel) w/ epoxy coating.

NFPA-22 ANTI-VORTEX KIT

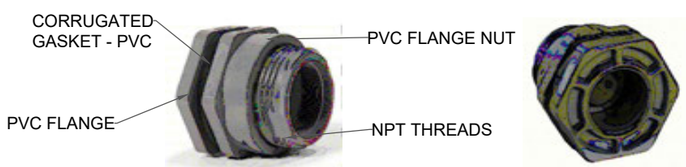


Note: Refer to the accompanying size chart for specific dimensions based on flange size

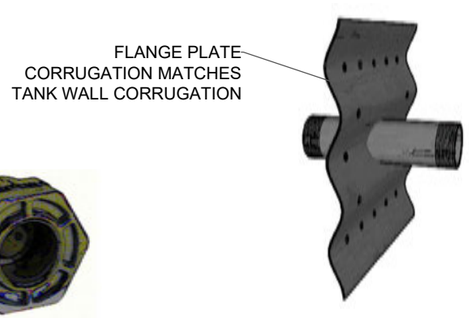
FLOOR FLANGE DETAIL



Bulkhead Fitting Detail



3D NPT FLANGE VISUALIZATION



DRAWN BY:	AP				FLANGE, VORTEX CHARTS FLOOR FLANGE DETAIL
APPROVED BY:	EK				
SCALE:	NFS				
					SHEET 16
containwatersystems.com					SHOP DRAWINGS

CONTAIN WATER SYSTEMS INC

CONTAIN
WATER SYSTEMS INC

WATER STORAGE TANK
LINER CERTIFICATION

WATER STORAGE TANK LINER CERTIFICATION	SHEET 17

RP | Reliance Plus

Potable Water Liner With Scrim

Property	Specification		Tolerance	Test Method
Thickness	30mil, .030" (After embossing)	40mil, .040" (After embossing)	+/- 5%	Micrometer
Width	72"	72"	-0, +1/2"	Off roll, relaxed
Durometer Hardness	80	80	+/- 3	Shore A
Fabric Weight	160 gram/m^2	160 gram/m^2	Nominal	D751
Liner Weight	1050 gram/m^2	1400 gram/m^2	+/- 80 gram/m^2	D751
Tensile Strength	250 / 220 lbf/in	260 / 220 lbf/in	Minimum	D751
Elongation	15 / 20%	15 / 20%	Minimum	D751
Tear Strength	50 / 40 lbf/in	60 / 50 lbf/in	Minimum	D751
Adhesion Strength	10 lbf/in	10 lbf/in	Average	D1876
Dimensional Stability	0.50%	0.50%	Maximum	D1204
Cold Crack Resistance	-20℃	-25℃	Pass	D1790
Operating Temperature	0°F - 150°F -18℃ - 66℃	0°F - 150°F -18℃ - 66℃	----	----

Tank liner is in compliance with American National Standards Institute/International NSF (ANSI/NSF) 61 & is compliant with AWWA D130-11 Standard.
Geomembrane Materials for Potable Water Applications, Tank liner is in compliance wtih AWWA D130-11 (290.43(c)(8)).

Drinking Water System Components. Health Effects

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. Click here for a list of Abbreviations used in these listings. Click here for the definitions of Water Contact Temperatures denoted in these listings.

Reliance Plus Limited
Unit A, 15/F, Seabright Plaza, 9-23
Shell Street, North Point
Hong Kong
852 2151 5488

Facility: Reliance Plus Limited , Guangzhou China

Protective (Barrier) Materials

Trade DesignationSize Restriction Temp Material

Liners[1]
.030 Gauge Potable Water Tank Liner >=500 gal CLD 23 FPVC
.040 Gauge Potable Water Tank Liner >=500 gal CLD 23 FPVC
.060 Gauge Potable Water Tank Liner >=500 gal CLD 23 FPVC
30 oz. Laminated Potable Water Tank Liner >=500 gal CLD 23 FPVC
42 oz. Laminated Potable Water Tank Liner >=500 gal CLD 23 FPVC

[1] Either side of the liner may be the water contact side,

CONTAIN
WATER SYSTEMS INC

WATER STORAGE TANK
LINER MANUFACTURING
QUALITY CONTROL

WATER STORAGE TANK LINER QUALITY CONTROL	SHEET 19

Liner Specs
Geomembrane Manufacturing

1. DEFINITION

Manufacturing Quality Control (MOC) is a planned system of routine inspections that is used to directly monitor and control the quality of a material.
Manufacturing Quality Assurance (MQA) is independent of the MOC and includes inspections, verifications, audits, and evaluations of materials and workmanship necessary to determine and document the quality of a material.

2. MANUFACTURING QUALITY CONTROL AND QUALITY ASSURANCE PROGRAM

2.1 Raw Material

Our quality control and quality assurance for PVC geomembrane manufacturing starts with the testing of the raw materia ls. The resin manufacturers provide documentation confirming that the raw materials comply with our specifications.

Resin manufacturers report the following properties with each resin shipment:

Density
This property is a measure of unit weight and is an indicator of the degree of crystallinity. It can be related to the material's chemical resistance, rigidity, permeability, tensile strength, and deformation characteristics.

Melt Index
This property is an indicator of the molecular weight and rheological properties of the polymer and can be related to the processability.

2.1.1 Geomembrane Material Railcar Acceptance

All resins, additives and concentrates used in geomembranes must have their physical integrity validated before they can be released into the production material stream. All incoming railcars are sampled by compartment; incoming materials not delivered by railcar are statistically sampled. Upon verification of the resin compliance with the specifications, the resin is pumped from the railcar into the silos dedicated to the production of the geomembrane.

1. Resin samples are taken from each of the four payload compartments in an incoming railcar.
2. Resin samples are sent to the laboratory. Using state of the art equipment, highly trained Quality Assurance personnel test the resin to ensure that it meets the specifications for producing geomembranes.

The following tests are performed and compared against our specifications:

Property	Resin	Additives & Concentrates
Density (ASTM D 1505)	●	
Melt Index (ASTM D 1238)	●	
Carbon Black Content (ASTM D 1603)		●
Oxidative Induction Time (ASTM D 3895)	●	●

3. After meeting production specifications. the resin is pumped from its railcar into a silo dedicated to that material.
4. Off-spec material is returned to the vendor.

Applicable Test Methods

American Society for Testing and Materials (ASTM)

ASTM D 792	Specific gravity (relative density) and density of plastics by displacement
ASTM D 1004	Initial tear resistance of plastic sheeting
ASTM D 1238	Flow rates of thermoplastics by extrusion plastometers
ASTM D 1505	Density of plastics by the Density-Gradient technique
ASTM D 1603	Carbon black in olefin plastics
ASTM D 1898	Sampling of plastics
ASTM D 3895	Test method of oxidative induction time of polyolefins by thermal analysis
ASTM D 4437	Determining the integrity of field seams used in joining flexible polymeric sheet geomembrane
ASTM D 4833	Index Puncture Resistance of geotextiles, geomembranes and related products
ASTM D 5199	Test method for measuring nominal thickness of geotextiles and geomembrane
ASTM D 5323	Determination of 2% secant modulus for polyethylene geomembranes
ASTM D 5397	Procedure to perform a single point notched constant tensile load - Appendix (SP-NCTL) test
ASTM D 5596	Test method for microscopic evaluation of the dispersion of carbon black in polyolefin geosynthetics
ASTM D 5617	Multi-axial tension test for geosynthetics
ASTM D 5721	Practice for air-oven aging of polyolefin geomembranes
ASTM D 5885	Test method for oxidative induction time of polyolefin geosynthetics by high pressure differential scanning calorimetry
ASTM D 5994	Test method for measuring the core th ickness of textured geomembranes
ASTM D 6692	Determining the integrity of non reinforced geomembrane seams produced using thermo-fusion methods
ASTM D 6693	Determining tensile properties of nonreinforced polyethylene and reinforced flexible polypropylene geomembranes
ASTM D 7238	Test method for effect of exposure of unreinforced polyolefin geomembrane using fluorescent UV condensation apparatus
ASTM D 7466	Test method for measuring the asperity height of textured geomembrane

Geosynthetic Research Institute (GRI) Standards

GM 10	Specification for the stress crack resistance of geomembrane sheet
GM 11	Accelerated weathering of geomembranes using a florescent UVA-condensation exposure device
GM 12	Measurement of the asperity height of textured geomembranes using a depth gauge

Addendum to Test Procedures
The following are modifications or clarifications to test procedures
1. Specifications are based on the average of Machine Direction (MD) and Cross Direction (XMD) values.
2. Specimens shall be taken uniformly across the width of the sheet as stated in ASTM D 1898.

3. MANUFACTURING

3.1 Blown Sheet Process

Resin is pumped directly from storage silos or from totes on the floor to hoppers above the extruder.

Hoppers feed resin into the extruder. The resin is heated to the melting point in the extruder barrel. It is conveyed through the barrel by the rotation of a specially designed screw which, in conjunction with heating elements along the barrel, provides consistency to produce a molten polymer stream.

The molten stream is forced through a screen pack, which act as a final filter for impurities or contaminants, and up through a die. It extrudes from the circular die as a film tube ("bubble"), pulled vertically by a set of nip rollers located at the top of a cooling tower. An IBC (Internal Bubble Cooling) unit, part of the extruder, maintains consistent bubble diameter. Material gauge is monitored and maintained by a computer system which controls the operation of the extruder.

At the top of the tower the bubble passes through a collapsing frame and is pulled through the nip rollers. The material is directed back toward the ground, and continues cooling as it approaches a winding machine. Before being taken up by the winder, the tube is split and spread to its deployable width. The winder rolls the finished geomembrane onto a specially made heavy-duty core.

3.2 Process Quality Control

Geomembranes are manufactured via the blown sheet process. This is a continuous process. The key elements to successfully producing a high qual ity liner is to maintain consistency in both the raw material and the process. As described above raw material consistency is established in the laboratory when the resin is initially received. Consistency during the processing is assured by an on-line quality control monitor. This representative of the quality department has been specially trained to monitor the process and the liners during the manufacturing process.

The extrusion process starts with the verification of the formulation . This is done at the beginning of each order or blend change by the extrusion manager and then is continuously monitored by the online quality control representative.

The process conditions during manufacturing have been optimized for each resin formulation. These conditions are kept in a log book which is available to the line operator. These process conditions must be maintained throughout the production run. Any variation of process parameters from the set point range recorded on the process log book are immediately reported to the production supervisor by the on-line quality control representative. If the variation exceeds the control range, the quality control representative places the material being produced on hold. Materials are placed on hold until the process is brought under control.

The on-line quality monitor can also place material on hold if the material has any visual defect (holes, water spots, or scratches) or dimensional abnormalities (width, length, and thickness).

All materials placed on hold will be further inspected and tested. If the material passes specification and is approved by the quality control manager and/or production manager, the material will then be re leased into stock. If the material fails to pass specification or does not get approval of either the quality control or production manager then the material will be reclassified or scrapped. In either case it cannot be sold as a prime geomembrane.

Geomembranes are continuously monitored for pinholes during the manufacturing process by spark testing equipment. The spark tester unit is a perpetual monitor of any holes that could surface in the sheet. The spark tester monitors the entire layflat width of the sheet as it is being manufactured. The detector operates from a 120 V AC power supply. The 120 volts are transformed to a higher voltage that ranges from 0-24 kilovolts. The electrode is made up of a long semiconductor blanket that is positioned to lay over the sheet as it passes over a steel roller prior to final wind ing. A grounding conductor is connected to the ro ller with a return line to the controller. If a hole passes under the electrically charged blanket, the voltage will arc to the steel roller and the detection system will sense the voltage drop, thus triggering an audible alarm and shutting down the wi nder. Twice per shift, the quality control technician tests the spark tester by introducing a 1/32" pinhole in the sheet. This hole is at the end of a roll after the scheduled footage has been achieved. The winder continues to run until the hole is detected. Once the hole is detected, the alarm sounds and the winder shuts down.
The Q.C. technician restarts the winder and cuts out the entire lay flat area of the pinhole.

After a roll of material has been produced it is labeled and a retain is cut for laboratory evaluation.

3.3 Roll Labeling

Three labels are affixed to each roll , as described below:
1. One label on the outside of the core.
2. One label on the core plug.
3. One label on the roll surface.

An additional label is attached to the laboratory sample.

3.4 Storage, Staging and Shipping of Geomembrane Rolls

Finished rolls (verified and labeled) are moved to the storage area using a specially designed cart and remain in storage until a Purchase Order is received. Rolls selected for shipment are moved to a staging area, where they are held for a truck. Before loading the order for shipment, all documentation is checked against the information on the roll labels. Rolls are lifted and moved using a loading arm equipped with rigging and hooks. Fork-lifting machinery are never to be used to lift or move geomembrane rolls.

CONTAIN
WATER SYSTEMS INC

WATER STORAGE TANK WARRANTY

WATER STORAGE 20 YEAR WARRANTY

CONTAIN WATER SYSTEMS INC. STANDARD WARRANTY:
THE WARRANTY PROVIDED HEREIN IS THE ONLY WARRANTY PROVIDED BY CONTAIN WATER SYSTEMS INC. AND IS IN LIEU OF AND TO THE EXCLUSION OF ANY OTHER WARRANTY, AGREEMENTS, CONTRACTS, VERBAL AGREEMENTS, PURCHASE ORDER INCLUSIONS / EXCLUSIONS, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY EXCLUDED. IN NO EVENT SHALL CONTAIN WATER SYSTEMS INC. BE LIABLE TO THE CUSTOMER FOR ANY INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LABOR CHARGES OR LOST PROFITS, EVEN IF CONTAIN WATER SYSTEMS INC. HAS BEEN PREVIOUSLY ADVISED OF THE POSSIBIILITIES OF SUCH DAMAGES.

This Warranty is only offered to the direct sale recipient. Contain Water Systems Inc. direct client, direct contractor and or distributor.

Contain Water Systems Inc. offers no warranty to any third party recipient of the product.
All Products are sold to the Customer with a Contain Water Systems Inc. Standard Limited Warranty for the Product, if any, as offered by Contain Water Systems Inc. and shall meet the Contain Water Systems Inc. published specifications for such products at the time of sale to the customer.

This warranty includes different coverage and warranty claim procedures for structural materials, water containment materials, workmanship and accessories.

STRUCTURAL MATERIALS

Structural materials manufactured by Contain Water Systems Inc. are warranted to be free from major defects in material for 20 YEARS from the date of shipment of the materials from the Contain Water Systems Inc. factory.

If a defect is found by Contain Water Systems Inc. to exist within the warranty period, then Contain Water Systems Inc. will, at the option of Contain Water Systems Inc,

(a) repair or replace defective materials free of charge, F.O.B. the Contain Water Systems Inc. factory of manufacture, or

(b) refund to the Customer the original purchase price of the defective materials, in lieu of such repair or replacement.

For galvanized steel tanks that are wrapped in Contain Water Systems Inc. supplied cedar wrap staves, the staves are not covered under this warranty.

WATER CONTAINMENT MATERIALS

Water containment liners manufactured by Contain Water Systems Inc. are warranted to be free from major defects due to defective material for a period of (20) years. If a liner should fail during the warranty period as a result of a manufacturing problem covered by this warranty, the original Customer shall notify Contain Water Systems Inc. in writing by mail.

ATTENTION: anastasiia@containwatersystems.com

This notice shall contain the liner serial number, date of purchase, and a description of the defect. Contain Water Systems Inc. will determine if the liner is to be returned to the factory or will ask that either; (1) the defective area or (2) the part of the liner stamped with the serial number be cut from the liner and returned. Liner, or liner pieces, must be cleaned and returned freight prepaid to:

Contain Water Systems Inc.
14144 Trautwein Rd
Austin, TX 78737

All replacement liners will be shipped freight collect. All liner replacement installations will be billed on a time & material basis and/or quoted for acceptance prior to execution.

ACCESSORIES

Accessories sold by Contain Water Systems Inc. but not manufactured by Contain Water Systems Inc. are subject to the original manufacturers' warranty terms.

Steel flanges manufactured by Contain Water Systems Inc. are warranted to be free from major defects due to defective materials for (20) years, from the date of shipment from the Contain Water Systems Inc. factory.

PVC flanges manufactured by others and supplied by Contain Water Systems Inc. are warranted to be free from major defects due to defective materials for ONE (1) YEAR from the date of shipment from the Contain Water Systems Inc. factory.

Any custom accessory manufactured by Contain Water Systems Inc. is warranted to be free from major defects due to defective materials for NINETY (90) DAYS from the date of shipment from the Contain Water Systems Inc. factory.

If a defect is found by Contain Water Systems Inc. to exist within the warranty period, then Contain Water Systems Inc. will, at the option of Contain Water Systems Inc., (a) repair or replace defective materials free of charge, F.O.B. the Contain Water Systems Inc. factory of manufacture, or (b) refund to the customer the original purchase price of the defective materials, in lieu of such repair or replacement.

CONTAIN WATER SYSTEMS INC

WATER STORAGE TANK WARRANTY

SHEET 23

Workmanship Warranty:
Contain Water Systems Inc. offers a (12)-month workmanship warranty.

THIS WARRANTY IS SUBJECT TO THE FOLLOWING DEFINITIONS, TERMS, AND CONDITIONS:

The Customer shall be defined as the party or entity who directly purchases the Products from Contain Water Systems Inc.
In most cases, the Customer will be a registered Contain Water Systems Inc. Dealer, Reseller, or OEM.
The Customer shall register the final installation site with Contain Water Systems Inc. (full address); not doing so is grounds for Contain Water Systems Inc. to deny warranty coverage.
Contain Water Systems Inc. assumes no obligation to any other party to whom the Customer may sell any material.
Contain Water Systems Inc. will only conduct warranty claim transactions with the direct Customer.
Any third party having a warranty issue must contact their supplier of the Contain Water Systems Inc. tank products.
Products include steel structural materials, hardware, pre-liners, penetration flanges, and water containment liners.

This warranty relates only to manufacturing defects and does not include damage that may occur during installation, standard wear & tear, nor failure resulting from other causes, including, but not limited to, acts of God, misuse or abuse, accident or negligence, fire, improper installation, salt or chemicals, or ice damage. Fading or staining of the galvanized steel finish is not covered by this warranty. Fading, microbiological staining of the liner, or any damage induced by the improper use of chemicals is not covered by this warranty. This Warranty includes Contain Water Systems Inc. manufactured equipment only and does not extend to other suppliers' equipment or materials.

Contain Water Systems Inc. shall not be responsible for the cost of removal or reinstallation of any defective Product, nor for any other expenses or damages which might be incurred in such removal or reinstallation nor for any damages that may be caused to any other property or thing due to the failure of a defective component. The Customer will not make any representations or warranty relating to the Product on behalf of Contain Water Systems Inc. The Customer shall promptly notify Contain Water Systems Inc. in writing of any Customer complaints or claims and shall follow the reasonable instructions from Contain Water Systems Inc. regarding the handling of such claims. The Customer shall create their own warranty for distribution to the Customer's customers. Contain Water Systems Inc. Standard Limited Warranty only covers major material defects and includes no labor cost for warranty investigation or correction. Contain Water Systems Inc. reserves the right to change models and specifications at any time without notice or obligation to improve previous models. This warranty does not cover white rust. Galvanized materials are subject to unsightly "white rust" if moisture is allowed to penetrate the wall sheets or roof bundle. To avoid this condition, upon delivery of the tank kit, the kit should be stored in a heated dry location. If there has been any exposure to moisture, then the wall sheets and roof panels should be separated in order to allow for air to dry the wall sheets. This warranty does not cover aesthetic inconsistencies in hot-dip galvanization. Products are warranted for corrosion resistance (coating thickness and adherence) only.

WARRANTY WILL BE VOID FOR ANY OF THE FOLLOWING REASONS:

1. If the components are installed by anyone other than factory-trained Contain Water Systems Inc. certified tank assembly crews or an assembly crew overseen by a certified Contain Water Systems Inc. instructor. Certified installation teams must hold valid/current certification tickets during the installation phase and during the warranty claim phase or the warranty may be rejected. All certification obligations must be met in full accordance with each project or the warranty may be rejected.
2. If the components are not installed in accordance with instructions issued by Contain Water Systems Inc.
3. If all components of the system are not original equipment supplied by Contain Water Systems Inc. (Exceptions are approved exterior conveyance equipment).
4. If the tank is used for storage of any materials other than potable or non-potable water (without approval).
5. If the tank is installed at any site for which the Customer has not disclosed to Contain Water Systems Inc. the site climatic conditions in advance of any product order. This is required for application, geographic, wind, snow loading, and usage requirements.
6. If there is any malfunction, damage, or failure resulting from misuse, abuse, negligence, alteration, accident, misapplication of specifications, or lack of proper maintenance.
7. If there is any consequential or special damage as a result of any defect in the product. "Consequential" or "Special Damages" as used herein include but are not limited to lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor, and incidental costs and operational inefficiencies.
8. Standard water tank design is for Seismic Zone 2B (Seismic Design Category C) conditions, 165 MPH (UBC) (With 24" of water), 110 MPH (When empty), and 30 PSF roof live load. Any other loading condition must be specifically requested prior to order.
9. Damage caused by either ice or freezing conditions. Heaters, circulators, and insulation are the responsibility of the customer to request.
10. Damage caused by acidic environmental conditions.
11. Damage caused by direct contact of AC condensate or distilled water to the galvanized steel.
12. If the tank is installed outside of the United States of America unless otherwise agreed to in writing by a principal of Contain Water Systems Inc.

NOTE 1: Contain Water Systems Inc. hereinafter referred to as CWS, water storage tanks guarantees the material utilized in this water storage tank is brand new and does not include any re-used materials.

NOTE 2: Contain Water Systems Inc. hereinafter referred to as CWS, water storage tanks include an internal geomembrane watertight liner (NSF 61 CERTIFIED), that is manufactured in an 1550:9001: 2008 certified facility. (AS SEEN ON OUR QC PACKET). CWS water storage tanks guaranteed to be free from defects and leaks as per CWS's warranty statement. Furthermore, CWS installs all of its water storage tanks utilizing in-house, certified & trained technicians to ensure installation QC measures are upheld throughout the entire process. Lastly, CWS requires a hydro test is completed at the end of the tank construction to ensure the tank is free from any defects and or leaks.

CONTAIN
WATER SYSTEMS INC

WATER STORAGE TANK CALCULATIONS

WATER STORAGE TANK CALCULATIONS	SHEET 25

CONTAIN WATER SYSTEMS INC

Water Tank Calculation Report

Project. No.:	CWSI-19482 / PO:NCA2047 V1.03
Date:	10/18/2024
By:	
Chk'd:	
Rev:	2

1-PROJECT INFORMATION

Project Number:	1308
Project Name:	CWSI-19482 / PO:NCA204731 NEXTERA KOLA
Tank Model:	1505D
Project Address:	17895 MIDWAY ROAD, MOUNTAIN HOUSE, CA 95391
Client Information:	ORR protection

2-DESIGN CRITERIA

2.1-Design Code & Risk Category

AWWA:	D103-09
ASCE 7:	16
Risk Category:	IV

2.2 Dead & Live Load Criteria

Content Density:	ρ=	62.4	[pcf]
Roof Weight:	RDL=	10	[psf]
Roof Live Load:	RLL=	15	[psf]

2.3 Wind Criteria

Exposure Category:	E=	C		
Basic Wind Speed:	V=	104	[mph]	
Directionality Factor	Kd=	1		ASCE7-16 Table 26-6-1
Topographic Factor:	Kzt=	1		ASCE 7-16 26.8-1
Ground Elevation Factor:	Ke=	1		ASCE7-16 Table 26.9-1
Gust Factor:	G=	1		
Depth of Protruding Elements:	D'=	1	[in]	

2.4 Seismic Criteria

Site Class:	SC=	D	
Seismic Use Group:	Use Group=	III	
Tank Type:		Mechanically Anchored	
Short Period Acceleration Coefficient:	Ss=	1.53	[g]
1-Sec Acceleration Coefficeint:	S1=	0.52	[g]
Long Period Ground Motion:	TL=	8.00	[s]
Natural Period of the Structure:	Ti=	0.00	[s]

2.5 Snow Criteria

Ground Snow:	pg=	0.00	[psf]	
Thermal Factor:	Ct=	1.20		ASCE 7-16 Table 7-3
Exposure Factor:	Ce=	1.00		ASCE 7-16 Table 7-2

3-MATERIALS

3.1-Tank Shell Steel

Steel Grade:		ASTM A36	
Steel Yield Strength:	Fy=	36	[ksi]
Steel Tensile Strength:	Fu=	58	[ksi]

3.2-Bolts

Bolt Grade:		ASTM A325	
Bolt Tensile Strength:	Fub=	120	[ksi]
Bolt Diameter:	Ø=	3/8	[in]
Bolt Spacing:	s=	2	[in[
Bolt Edge Distance:	a=	1	[in]

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

STAMPED FOR STRUCTURAL CONTENT ONLY

10/21/2024

4-TANK GEOMETRY

4.1- Tank Type

Tank Diameter	*D=*	15	[ft]	
Shell Height	*Hshell=*	18.65	[ft]	
Number of Tiers:	*#Tiers=*	5		
Min. Required Freeboard:		2.62	[ft]	*AWWA D103-09 Table 7*

4.2 - Roof Type

Roof Type:		Flat		
Roof Angle:	*Δroof=*	0.00	[°]	
Roof Height:	*Hroof=*	18.65	[ft]	

4.3 -Tank Tier & Bolting Pattern

Tier Number	Tier Height [ft]	Height [ft]	Shell Thickness [in]	Vertical Bolting Pattern	Vertical Bolt Spacing [in]	Horizontal Bolting Pattern	Horizontal Bolt Spacing [in]
1	3.73	3.73	0.116	Double	2	Single	9.75
2	3.73	7.46	0.116	Double	2	Single	9.75
3	3.73	11.19	0.116	Double	2	Single	9.75
4	3.73	14.92	0.116	Double	2	Single	9.75
5	3.73	18.65	0.116	Double	2	Single	9.75

5-TANK CALCULATIONS

5.1 - Wind Load Calculations

Apex Angle:	*Δ=*	90	[°]	
Mean Roof Height:	*h=*	18.65	[ft]	
Surface Type:		Moderately Smooth		
Exposure Category:	*E=*	C		
Wind Importance Factor:	*Iw=*	1		
Basic Wind Speed:	*V=*	104	[mph]	
Directionality Factor:	*Kd=*	1		*ASCE7-16 Table 26-6-1*
Topograhic Factor:	*Kzt=*	1		*ASCE 7-16 26.8-1*
Gust Effect Factor:	*G=*	1		
Force Coeficient:	*Cf=*	0.50		*ASCE 7-16 Fig. 29.4-1*
Velocity Pressure Exposure Coefficient:	*Kz=*	0.92		*ASCE 7-16 Table 26.10-1*
Velocity Pressure:	*qz=*	25.47	[psf]	
Exposed Surface Area:	*Af=*	279.8	[ft2]	
Wind Base Shear:	*Vw=*	4230	[lbs]	
Wind Overturning Moment:	*Mw=*	39447	[lbs-ft]	

Tier Number	Zg [ft]	Kz	qz [psf]	Pz [psf]	Fz [lbs]	Vz (lbs)	Mz (lb-ft)	Fw (lbs/ft)
Roof	18.65	0.89	24.61	15.12	0.00	0.00	0.00	0.00
1	16.79	0.87	24.07	15.12	846.06	846.06	1577.90	8.93
2	14.92	0.85	23.50	15.12	846.06	1692.12	6311.60	35.72
3	13.06	0.85	23.50	15.12	846.06	2538.17	14201.08	80.36
4	11.19	0.85	23.50	15.12	846.06	3384.23	25246.37	142.87
5	9.33	0.85	23.50	15.12	846.06	4230.29	39447.44	223.23

STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

5.2 -Seismic Load Calculations

Seismic Mass Calculation

Total Weight of Tank Contents:	*W_t=*	176680	[lbs]	*AWWA D103-09 §14.3 (Eq 14-23)*
Effective Impulsive Weight:	*W_i=*	145702	[lbs]	*AWWA D103-09 §14.3 (Eq 14-20 and 14-21)*
Effective Convective Weight:	*W_c=*	38028	[lbs]	*AWWA D103-09 §14.3 (Eq 14-22)*
Weight of Tank Shell+ Significant Appuranances:	*W_s=*	4163	[lbs]	
Weight of Tank Roof Including permaments loads:	*W_r=*	1767	[lbs]	
Total Weight of Tank:	*Wtotal=*	182610	[lbs]	
Is Seismic Design Required?		**YES**		*If Ss<=0.15 and S1<=0.04 Seismic Design is not required per AWWA D103-09*
Seismic Importance Factor:	*Ie=*	1.5		*AWWA D103-09 §14.2.2 Table 2*
Short-Period Site Coefficient:	*Fa=*	1.00		*AWWA D103-09 §14.2.2 Table 4*
Long-Period Site Coefficient:	*Fv=*	1.50		*AWWA D103-09 §14.2.2 Table 5*

5% Damped MCE Spectral Response Accelerations

At 0.2s	*SMS=*	1.531	[g]	*AWWA D103-09 §14.2.7.2 (Eq 14-5)*
At 1s	*SM1=*	0.783	[g]	*AWWA D103-09 §14.2.7.2 (Eq 14-6)*

5% Damped Design Response Spectrum Accelerations

At 0.2s	*SDS=*	1.021	[g]	
At 1s	*SD1=*	0.522	[g]	
Natural Period of the Structure:	*Ti=*	0.00	[s]	*AWWA D103-09 §14.3.1*
	Ts=	0.511	[s]	
First Mode Sloshing Wave Period:	*Tc=*	2.24	[s]	*AWWA D103-09 §14.3.1 Eq. 14-18*
Damping Scaling Factor (5% to 0.5%):	*K=*	1.5		*AWWA D103-09 §14.2.3.2*
Design Response Spectrum for Impulsive Components:	*Sai=*	1.021	[g]	*AWWA D103-09 §14.2.3.1 (Eq 14-9,14-10 and 14-11)*
Design Response Spectrum for the Convective Component:	*Sac=*	0.350	[g]	*AWWA D103-09 §14.2.3.2 (Eq 14-9,14-12 and 14-13)*

Response Modification Factors

Impulsive Components:	*Ri=*	3		*AWWA D103-09 §14.2.6 Table 6*
Convective Component :	*Rc=*	1.5		*AWWA D103-09 §14.2.6 Table 6*

Design Accelerations

		LRFD	ASD		
Impulsive Design Acceleration	*Ai=*	0.510	0.365	[g]	*AWWA D103-09 §14.2.9.1 Eq. 14-16*
Convective Design Acceleration	*Ac=*	0.350	0.250	[g]	*AWWA D103-09 §14.2.9.1 Eq. 14-17*
Vertical Design Acceleration	*Av=*	0.204	0.146	[g]	*AWWA D103-09 §14.3.4.3*

Overall Effects on Tank Base

Height from bottom of the shell to c.o.g. of the roof:	*Xr=*	18.7	[ft]	
Height from bottom of the shell to c.o.g. of the shell:	*Xs=*	11.2	[ft]	
Height from bottom of the shell to c.o.g. of the shell applied to Wi:	*Xi=*	7.7	[ft]	*AWWA D103-09 §14.3 (Eq 14-24 and 14-25)*
Height from bottom of the shell to centroid of lateral seismic force applied to Wc:	*Xc=*	14.6	[ft]	*AWWA D103-09 §14.3 (Eq 14-26))*

		LRFD	ASD		
Design Overturning Moment at Top of foundations (Ringwall):	*Ms=*	642246	458747	[lbs-ft]	*AWWA D103-09 §14.3 (Eq 14-19)*
Design Overturning Moment at Top of foundations (Mat or Pile Cap):	*Msf=*	835168	596548	[lbs-ft]	*AWWA D103-09 §14.3 (Eq 14-28)*
Design Shear at Top of foundations:	*Vs=*	78519	56085	[lbs]	*AWWA D103-09 §14.3 (Eq 14-27)*

5.2 -Snow Load Calculations

Importance Factor:	*Is=*	1.20		ASCE 7-16 Table 1.5-2
Flat Roof Snow Load:	*pf=*	0	[psf]	ASCE 7-16 7.3
Min. Snow Load for Low Slope Roofs:	*pf_min=*	0	[ft]	ONLY FOR ROOF <15° as separate case
Roof Slope:	*roof_s=*	0	[°]	<70°, Snow Load must be considered
Roof Type:		Flat		UNBALANCED SNOW LOAD DOES NOT
Slope Roof Coeficient	*Cs=*	1		*ASCE 7-16 Fig. 7.4-1*
Balanced Roof Load	*pbalanced=*	0	[psf]	*ASCE 7-16 eq. 7.4-1*

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

STAMPED FOR STRUCTURAL CONTENT ONLY

10/21/2024

5.3 - Hoop Load Calculations

Tier Number	Hoop Loads		Seismic Hoop Load			
	Water	Seismic	Impulsive	Convective	Hydrostatic	Resultant
	Nh (lbs/in)	Nk (Lbs/in)	Ni (lbs/in)	Nc (lbs/in)	Av*Nh,k (lbs/in)	Nk (lbs/in)
1	145	98	88	31	30	98
2	291	153	141	12	59	153
3	436	182	159	5	89	182
4	582	199	160	2	119	199
5	727	218	160	2	148	218

5.3 - Vertical Load Calculations

Tier Number	Vertical Loads					
	Wall DL	Roof DL	Roof LL	Wind	Seismic	Snow
	(lbs/in)	(lbs/in)	(lbs/in)	(lbs/in)	(lbs/in)	(lbs/in)
1	1.47	3.13	4.69	0.74	302.86	0.00
2	2.94	3.13	4.69	2.98	302.86	0.00
3	4.42	3.13	4.69	6.70	302.86	0.00
4	5.89	3.13	4.69	11.91	302.86	0.00
5	7.36	3.13	4.69	18.60	302.86	0.00

5.4 - Combined Hoop and Vertical Load Calculations

Tier Number	Load Combinations (ASD)							
	D+F+(0.6W OR 0.7E)		D+F+0.45W+0.75(Lr or S)		D+F+0.525E+0.75S		D+F+(Lr or S)	
	Hoop (lbs/in)	Vertical (lbs/in)	Hoop (lbs/in)	Vertical (lbs/in)	Hoop (lbs/in)	Vertical (lbs/in)	Hoop (lbs/in)	Vertical (lbs/in)
1	213.97	216.60	145.47	8.45	196.85	163.60	145.47	9.28
2	398.38	218.07	290.94	10.92	371.52	165.07	290.94	10.76
3	564.06	219.55	436.41	14.07	532.14	166.55	436.41	12.23
4	721.16	221.02	581.88	17.89	686.34	168.02	581.88	13.70
5	879.95	222.49	727.35	22.37	841.80	169.49	727.35	15.17

5.5 - Intermediate Wind Girt Calculations AWWA D103-09 Sec. 15.4

Tier Number	Wind Girt Requirement		
	taverage (in)	h(ft)	Required?
1	0.116	55.434	NO
2	0.116	55.434	NO
3	0.116	55.434	NO
4	0.116	55.434	NO
5	0.116	55.434	NO

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

STAMPED FOR STRUCTURAL CONTENT ONLY

10/21/2024

5.6- Shell Vertical and Hoop Capacities per AWWA D103-09 Sec. 5.4

Tier Number	Vertical Capacity			Hoop Capacity		
	Max Vertical Load [lbs/in]	Vertical Capacity [lbs/in]	Check	Max Hoop Load [lbs/in]	Hoop Capacity [lbs/in]	Check
1	216.60	286.18	OK	213.97	1303.15	OK
2	218.07	286.18	OK	398.38	1303.15	OK
3	219.55	286.18	OK	564.06	1303.15	OK
4	221.02	286.18	OK	721.16	1303.15	OK
5	222.49	286.18	OK	879.95	1303.15	OK

5.7-Vertical Bolt Calculations per AWWA D103-09 Sec. 5.5

Tier Number	Shear per Bolt [kips]	Min. Spacing [in]	Min. Spacing Check	Bolt Shear [ksi]	Bolt Shear Capacity [ksi]	Bolt Shear Check	Bolt Bearing Capacity [ksi]	Bolt Bearing Check
1	0.23	0.75	OK	2.06	29.45	OK	48.60	OK
2	0.42	0.75	OK	3.84	29.45	OK	48.60	OK
3	0.60	0.75	OK	5.44	29.45	OK	48.60	OK
4	0.77	0.75	OK	6.96	29.45	OK	48.60	OK
5	0.94	0.75	OK	8.49	29.45	OK	48.60	OK

5.8-Horizontal Bolt Calculations per AWWA D103-09 Sec. 5.5

Tier Number	Shear per Bolt [kips]	Min. Spacing [in]	Min. Spacing Check	Bolt Shear [ksi]	Bolt Shear Capacity [kips]	Bolt Shear Check	Bolt Bearing Capacity [kips]	Bolt Bearing Check
1	2.11	0.84	OK	19.12	29.45	OK	48.60	OK
2	2.13	0.85	OK	19.25	29.45	OK	48.60	OK
3	2.14	0.85	OK	19.38	29.45	OK	48.60	OK
4	2.15	0.86	OK	19.51	29.45	OK	48.60	OK
5	2.17	0.87	OK	19.64	29.45	OK	48.60	OK

5.8-Anchor Load Calculations & Min. Number of Anchors

Number of Adopted Anchors:	#Anchors=	40	OK	*Note : Anchors are not checked in this calculation.*
Maximum Anchor Spacing:	Smax=	10 ft		*AWWA D103-09 5.9.1.2.1*
Min. Number of Anchors:	Min#Anchors 1=	5		*AWWA D103-09 5.9.1.2.1*
Min. Number of Anchors based on Spacing:	Min#Anchors 2=	5		
Adopted Spacing:	S adopted=	1.18 ft		
	Z= N*D/4=	150 ft		

Unfactored Anchorage Reactions at each anchor point

Load [lbs]/Load Case	Seismic	Wind
Uplift	4148	152
Shear	1963	106

STAMPED FOR STRUCTURAL CONTENT ONLY

REGISTERED PROFESSIONAL ENGINEER
ADRIANA B. GONORAZKY
C 48294
EXP 06/30/2026
CIVIL
STATE OF CALIFORNIA

10/21/2024

7-SUMMARY

7.1-Tank Statistics

Top Capacity Level:	*TCL*=	16.03	[ft]
Tank Capacity:	*V*=	21183	[Gallons]
Content Weight:	*Wcontents*=	176680	[lbs]
Weight of Shell	*Wshell*=	4163	[lbs]
Total Weight:	*Wtotal*=	182610	[lbs]

7.2-Unfactored Loads for Foundation Design

Load Case	N [kip]	V [kip]	M[kip-ft]	
D	5.9	-	-	-
LLR	2.7	-	-	-
S	0.0	-	-	-
F	176.7	-	-	-
E	0.5	78.5	642.25*	835.17**
W	-3.3	4.2	39.4	-

Note: For Axial Load (-) means suction
*To be used for Ringwall or Berm Foundation per AWWA D103-09 §14.3 (Eq 14-19)
**To be used for Mat or Pile Cap per AWWA D103-09 §14.3 (Eq 14-28)

8-NOTES

STAMPED FOR STRUCTURAL CONTENT ONLY

10/21/2024

APPENDIX 3.1-A: BLM VISUAL CONTRAST RATING WORKSHEETS

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 06/26/2024
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 1, facing east		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - tall, irregular	FG: short irrigation canal, linear roadway MG: linear roadway, angular and linear transmission tower and lines
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines, irregular	FG: horizon irrigation canal and roadway MG: horizontal roadway, horizontal and vertical transmission tower and line
COLOR	FG to MG: tan, blue	FG to MG: ruderal veg - green, tan, row crops - green, trees - green, brown	FG: gray, white, rust MG: gray
TEX-TURE	FG: smooth to rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG: smooth irrigation canal and roadway MG: smooth roadway and transmission tower and lines

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - tall, irregular	FG: short irrigation canal, linear roadway MG: linear roadway, angular and linear transmission tower and lines
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines, irregular	FG: horizon irrigation canal and roadway MG: horizontal roadway, horizontal and vertical transmission tower and lines
COLOR	FG to MG: tan, blue	FG to MG: ruderal veg - green, tan, row crops - green, trees - green, brown	FG: gray, white, rust MG: gray
TEX-TURE	FG: smooth to rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG: smooth irrigation canal and roadway MG: smooth roadway and transmission tower and lines

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				✓				✓			✓	
	LINE				✓				✓			✓	
	COLOR				✓				✓			✓	
	TEXTURE				✓				✓			✓	

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell
Date: 06/26/2024

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/12/2025
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 2a, facing south		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	FG: linear roadway, utility poles MG: linear roadway, utility poles, angular agricultural structure, transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	FG - MG: horizontal roadway, vertical utility poles, MG: angular structure, towers
COLOR	FG to MG: tan BG: Blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green, brown	FG: gray, brown, white, yellow MG: gray, brown
TEX-TURE	FG to MG:: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	FG: linear roadway, utility poles, circular water tank, MG:angular agricultural structure, transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	FG: horizontal roadway, fencing, vertical utility poles, angular Bess, circular water tank, MG: angular structure, towers
COLOR	FG to MG: tan BG: Blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green, brown	FG: gray, brown, white, yellow, green MG: gray, brown
TEX-TURE	FG to MG:: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓			✓			✓			
	LINE			✓			✓					✓	
	COLOR				✓		✓					✓	
	TEXTURE				✓		✓						✓

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell
Date: 03/12/2025

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 06/26/2024
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 2b, facing southwest		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	FG: linear roadway MG: angular transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	FG: horizon roadway MG: angular transmission towers
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	FG: gray, white MG: gray
TEX-TURE	FG to MG:: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous, View partially blocked	FG: landscaping and row crops - low MG: landscaping and row crops - low, regular, trees - tall, irregular	FG: solid, block wall, angular substation, linear roadway MG: angular transmission towers
LINE	FG to MG: horizontal BG: silhouette, View partially blocked	FG: landscaping, row crops - weak lines, MG: landscaping and row crops - weak lines, trees – horizontal, irregular lines	FG: rectangular, block wall, angular substation, linear roadway MG: angular transmission towers
COLOR	FG to MG: tan BG: tan, blue, View partially blocked	FG: landscaping - variety, row crops - green, trees - green, brown MG: row crops - green, trees - green, brown	FG: gray, white MG: gray
TEX-TURE	FG to MG:: smooth MG: uniform, View partially blocked	FG to MG: landscaping and row crops - dense, trees - dense	G to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM		✓				✓			✓			
	LINE		✓				✓					✓	
	COLOR		✓				✓					✓	
	TEXTURE		✓				✓						✓

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn Paula Fell
Date: 06/26/2024

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 03/12/2025
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 3, facing north		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	FG: linear roadway MG: angular transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	FG: horizon roadway MG: angular transmission towers
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green	FG: gray, white MG: gray
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: landscaping and row crops - low MG: landscaping and row crops - low, regular, trees - tall, irregular	FG: angular substation and BESS, circular water tank, linear roadway MG: angular transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG: landscaping, row crops - weak lines, MG: landscaping and row crops - weak lines, trees – horizontal, irregular lines	FG: angular substation and BESS, circular water tank, linear roadway MG: angular transmission towers
COLOR	FG to MG: tan BG: tan, blue	FG: landscaping - variety, row crops - green, trees - green, brown MG: row crops - green, trees - green	FG: gray, white MG: gray
TEX-TURE	FG to MG:: smooth MG: uniform	FG to MG: landscaping and row crops - dense, trees - dense	FG to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓			✓		
	LINE			✓				✓				✓	
	COLOR				✓			✓				✓	
	TEXTURE				✓			✓					✓

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell

Date: 03/12/2025

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 06/26/2024
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 4, facing southwest		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG to MG: ruderal veg and row crops - low, regular, ornamental plants - irregular, trees - tall, irregular	FG to MG: linear roadway, utility poles, angular agricultural structure, transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG to MG: ruderal veg, row crops, ornamental veg - weak lines, trees – horizontal, irregular lines	FG to MG: horizontal roadway, vertical utility poles, angular agricultural structure, transmission towers
COLOR	FG to MG: tan BG: Blue	FG to MG: ruderal veg - green, tan, row crops - green, ornamental veg - variety, trees - green, brown	FG to MG: gray, brown, white, yellow
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - fine, row crops and ornamental veg - dense, trees - dense	FG to MG: smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG to MG: ruderal veg and row crops - low, regular, ornamental plants - irregular, trees - tall, irregular	FG to MG: linear roadway, utility poles, angular agricultural structure, transmission towers
LINE	FG to MG: horizontal BG: silhouette	FG to MG: ruderal veg, row crops, ornamental veg - weak lines, trees – horizontal, irregular lines	FG to MG: horizontal roadway, vertical utility poles, angular agricultural structure, transmission towers
COLOR	FG to MG: tan BG: Blue	FG to MG: ruderal veg - green, tan, row crops - green, ornamental veg - variety, trees - green, brown	FG to MG: gray, brown, white, yellow
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - fine, row crops and ornamental veg - dense, trees - dense	FG to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				✓				✓			✓	
	LINE				✓				✓			✓	
	COLOR				✓				✓				✓
	TEXTURE				✓				✓				✓

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell

Date: 06/26/2024

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 06/26/2024
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 5, facing southwest		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	MG: angular transmission towers, residential and agricultural structures
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	MG: angular transmission towers, residential and agricultural structures
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green	MG: gray, red, white
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	MG: angular transmission towers, residential and agricultural structures
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	MG: angular transmission towers, residential and agricultural structures
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green	MG: gray, red, white
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				✓				✓			✓	
	LINE				✓				✓			✓	
	COLOR				✓				✓				✓
	TEXTURE				✓				✓				✓

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell
Date: 06/26/2024

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 06/26/2024
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 6, facing southwest		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	MG: angular transmission towers, agricultural structures
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	MG: angular transmission towers, agricultural structures
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green	MG: gray, white
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat BG: mountainous	FG: ruderal veg and row crops - low MG: ruderal veg and row crops - low, regular, trees - tall, irregular	MG: angular transmission towers, agricultural structures
LINE	FG to MG: horizontal BG: silhouette	FG: ruderal veg, row crops - weak lines, MG: ruderal veg and row crops - weak lines, trees – horizontal, irregular lines	MG: angular transmission towers, agricultural structures
COLOR	FG to MG: tan BG: tan, blue	FG: ruderal veg - green, tan, row crops - green, trees - green, brown MG: row crops - green, trees - green	MG: gray, white
TEX-TURE	FG to MG: smooth MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - dense	FG to MG: smooth

SECTION D. CONTRAST RATING __SHORT TERM ✓ LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				✓				✓			✓	
	LINE				✓				✓			✓	
	COLOR				✓				✓				✓
	TEXTURE				✓				✓				✓

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn, Paula Fell
Date: 06/26/2024

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 01/22/2025
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 7A, facing southeast		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - medium, irregular	FG: short canal MG: angular and linear transmission tower and lines
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines	FG: horizontal canal MG: horizontal and vertical transmission tower and lines
COLOR	FG to MG: tan	FG to MG: ruderal veg, row crops - green, tan, trees - brown	FG: brown MG: gray
TEX-TURE	FG: rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - medium	FG: rough canal MG: smooth transmission tower and lines

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - medium, irregular	FG: short canal, angular and linear wall, gen-tie, fiber optic, substation MG: vertical transmission tower
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines	FG: horizontal canal, horizontal and vertical wall,gen-tie, fiber optic, substation MG: vertical transmission tower
COLOR	FG to MG: tan	FG to MG: ruderal veg, row crops - green, tan, trees - brown	FG: gray, brown MG: gray
TEX-TURE	FG: rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - medium	FG: rough canal, smooth wall, gen-tie, fiber optic, substation MG: smooth transmission tower

SECTION D. CONTRAST RATING __SHORT TERM ✓LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓		✓			
	LINE			✓				✓				✓	
	COLOR			✓				✓				✓	
	TEXTURE			✓				✓					✓

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn. Paula Fell
Date: 01/22/2025

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)

Form 8400-4
(June 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 01/22/2025
District Office: N/A
Field Office: N/A
Land Use Planning Area: N/A

SECTION A. PROJECT INFORMATION

1. Project Name	4. KOP Location (T.R.S)	5. Location Sketch
Corby Battery Energy Storage System Project		
2. Key Observation Point (KOP) Name KOP 7B, facing south-southeast		
3. VRM Class at Project Location Unclassified/Not on Federal Land	(Lat. Long)	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - medium, irregular	FG: short canal
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines	FG: horizontal canal
COLOR	FG to MG: tan	FG to MG: ruderal veg, row crops - green, tan, trees - brown	FG: brown
TEX-TURE	FG: rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - medium	FG: rough canal

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FG to MG: flat	FG to MG: ruderal veg - low, Row crops - low, regular, trees - medium, irregular	FG: short canal, angular and linear gen-tie, fiber optic, substation
LINE	FG to MG: horizontal	FG to MG: ruderal veg - weak lines, row crops - weak lines, contiguous, trees - horizontal lines	FG: horizontal canal, horizontal and vertical gen-tie, fiber optic, substation
COLOR	FG to MG: tan	FG to MG: ruderal veg, row crops - green, tan, trees - brown	FG: gray, brown
TEX-TURE	FG: rough MG: uniform	FG to MG: ruderal veg - sparse, fine, row crops - dense, trees - medium	FG: rough canal, smooth gen-tie, fiber optic, substation

SECTION D. CONTRAST RATING __SHORT TERM ✓LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			✓				✓		✓			
	LINE			✓				✓		✓			
	COLOR			✓				✓		✓			
	TEXTURE			✓				✓		✓			

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names: Josh Hohn. Paula Fell
Date: 01/22/2025

(Continued on Page 2)

Comments from item 2.

Additional Mitigating Measures (See item 3)