

CWSP SYSTEM HARDENING FIELD SCOPING DOCUMENT

PM: 35217272	Project Name: SH - KESWICK 1101 LR 1586	
Notification: 120048018	Region: Northern	City: Redding
Project Manager: [REDACTED]	Division: North Valley	County: Shasta

Proposed Project Scope¹:

	Desktop Meeting Results			ADE Fielding Results		
	Miles	Unit Cost (\$M)	Total Cost (\$M)	Miles	Unit Cost (\$M)	Total Cost (\$M)
Harden in Place (OH only)			\$ 7.23			\$ 4.91
Convert OH to UG			\$ 31.26			\$ 21.00
Relocation (OH to OH location)			\$ 0.00			\$ 0.00
Reconfigure	Remove		\$ 0.00			\$ 0.00
	Add		\$ 0.00			\$ 0.00
Totals			\$ 38.49			\$ 25.91

1. This table is to be filled out by Project Manager detailing the change in units and costs before and after the Field Scoping Process is completed.

A) Field Scoping Team - Desktop Meeting Notes

The following are required outputs to be discussed in the meeting:

- Main Route(s) of Egress
- Land and Environmental Risk(s)
- Vegetation density and risk assessment
- Construction review (area(s) of concern)

Additional Option(s) or Comment(s):

BIO CONSTRAINTS

1. There is California red-legged frog and Foothill yellow-legged frog MRHCP modeled habitat within the project area, no constraints as long as species-specific AMMs are implemented.

Could require work during the dry season (May 15 - Oct 15) and/or biomonitoring.

2. There are multiple water crossings. **Potential Permitting***

CULTURAL CONSTRAINTS

Entire Project:

Numerous cultural resources within the project area.

Cost: Fieldwork will include monitoring on portions of OH and all UG. Site record updates (esp. BLM land) and survey of access routes. Field work is anticipated to take at least 5-6 weeks.

EFS CONSTRAINTS

No Constraints

PSS REVIEW

Location, Fuel Types and Population Density:

- The Keswick 1101 project is in Shasta County. Project originates near the community of Keswick and continues north along Iron Mountain road
- Fuel types are consistent with grass, brush, and intermixed patches of conifers. Fuel loading can be very light to heavy in places; however, fuels have been significantly reduced in the project area due to the 2018 Carr Fire.
- The community of Keswick is at the southern end of the project and the population would be considered low. After the project heads north from Keswick, the area is sparsely populated. South of the project is the small mountain community of Shasta.
- To the east and south of the project is the City of Redding.

Fire History:

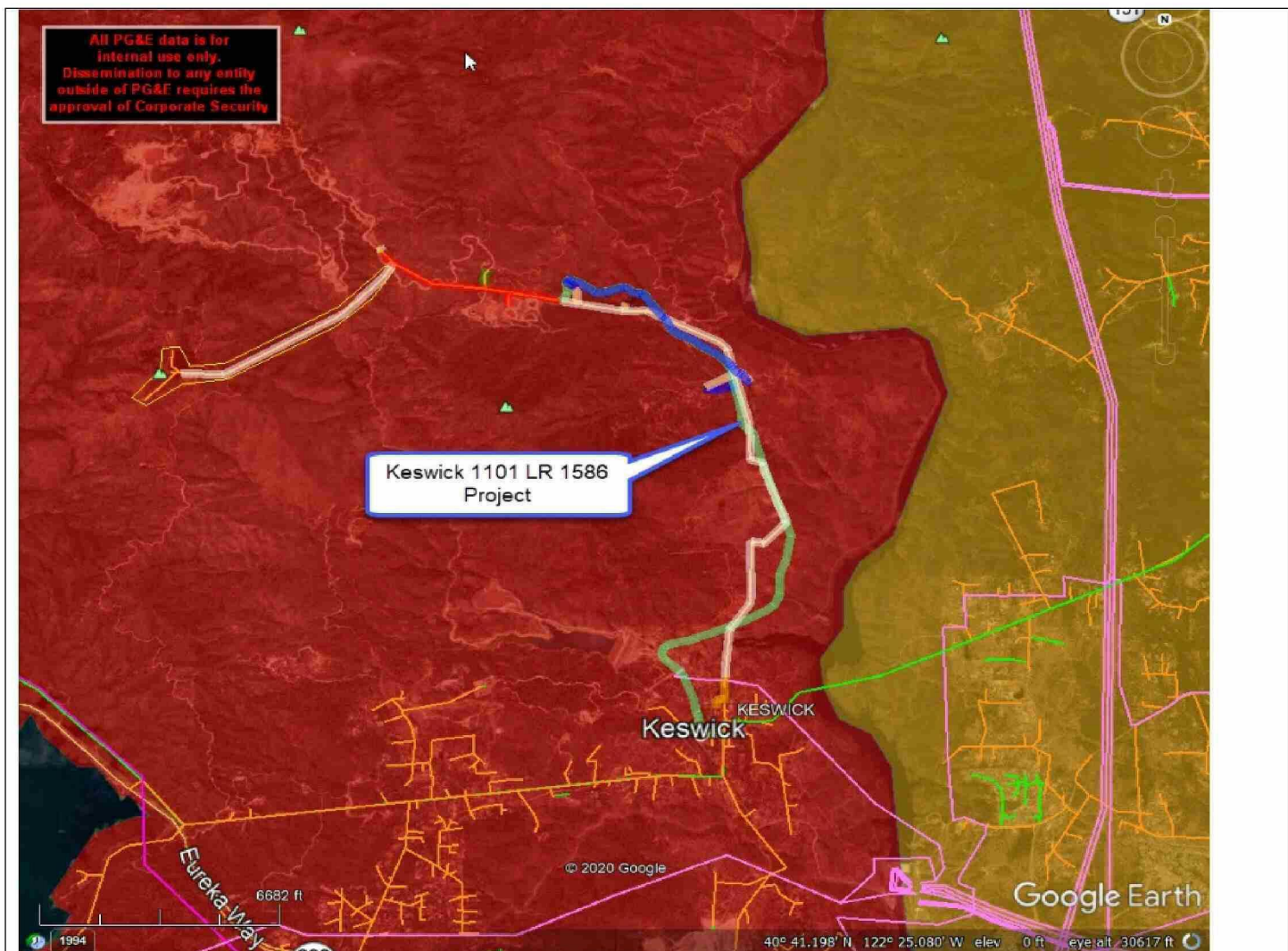
- This area has significant fire history directly impacting the project area. The Carr Fire 2018, Bully Fire 2014, Clover Fire 2013, SHU Lightning 2008.
- All of these fires were not directly in the project footprint area but show the ability of the area fuels to resist containment and have a fire become a major fire.

Routes of travel for first responders and evacuees if a fire happens:

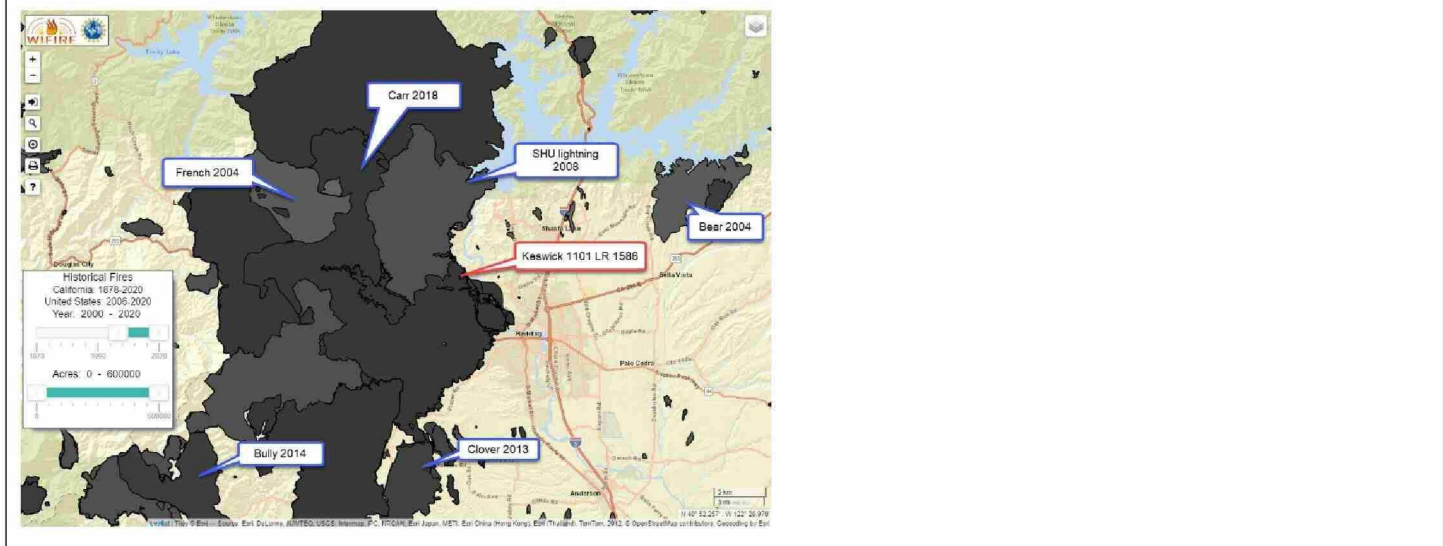
- Most of the project is along Iron Mountain road, which is the only route of travel for evacuating the few residents living north of the community of Keswick to Highway 299W.
- If the evacuation route to the south was cut off in the community of Keswick, the residents would have to either shelter in place or use a series of dirt roads, often blocked by locked gates, to travel north to the Shasta OHV park/Shasta Dam day use area.
- First responders would use Rock Creek and Iron Mountain roads from the south to make access to the area.
- This portion of the Keswick 1101 serves the 4,400-acre Iron Mountain Mine site and its operation of a full-scale neutralization system, responsible for the collection of contaminated water runoff for treatment, significantly reducing acid and metal contamination in surface water at the site.
- Iron Mountain road is the access point for PG&E crews to service and maintain ED assets supplying South Fork Lookout Peak telecom sites for power.

Attachments/Images:

- A) **Project Area** – Google Earth Image with Circuit and HFTD Tier 2 Tier 3 Overlay



B) Fire History – WIFire Map at <https://firemap.sdsc.edu/> to produce the fire history image.



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Note:

Originally proposed to [REDACTED] Not an option per [REDACTED]
 103934127 to 101456258 1.9 miles – 4 Tx. Appears the load is too great for Remote Grid.

Desk-Top Review Results

Purpose: This checklist is to be used to methodically analyze the project to determine final scope to eliminate/mitigate the fire risk to the maximum extent.

Overhead Line Elimination:

- Yes No **DER alternatives to consider** (these location(s) to be sent to [REDACTED])
- Yes No **Idle facilities to remove** (These location(s) to be sent to [REDACTED])
- Yes No **Redundant ties to remove** (These location(s) should be run through Distribution Reliability Planning)

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	OH Elimination Type (DER, Idle, Tie Rem.)	Additional Notes:
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		

Overhead to Underground Conversion:

- Yes No **Lines to be considered for UG** (These location(s) to be sent to [REDACTED])

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	Trench, Bore, or Plow-in	Additional Notes:
103922836	103934187	Trench / Bore	0.20 miles - Include branch to SAP ID 101466013.
101463252	1*****	Trench / Bore	0.17 miles - Ends east towards down personal drive. Tie in to proposed UG on Iron Mountain Road
101469508	101463219	Trench / Bore	2.38 miles – Iron Mountain Road
101469423	101463365	Trench / Bore	0.20 Miles – Iron Mountain Road
101463369	101463365	Trench / Bore	0.12 miles – east of Iron Mountain Road
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		

CWSP SYSTEM HARDENING FIELD SCOPING DOCUMENT

There are several factors that should be considered in identifying these potential overhead to underground conversions:

Is there a viable route available? Is there a dedicated street/easement available?

What is the feasibility of new land rights?

What is the soil condition?

Are there a significant number of service drops, tap-lines, or other overhead equipment?

Relocation of Facilities:

Yes No **Lines to be considered for relocation** (These location(s) to be sent to [REDACTED])

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	OH, Trench, Bore, or Plow-in	Additional Notes:
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		
1*****	1*****		

There are numerous other strategies that may be employed or prepared for in scoping a CWSP project. The following examples should be considered, and teams should be invited to participate:

- Rapid Earth Fault Current-Limiter (REFCL) – This system can detect phase-to-earth faults. They then cancel the voltage on the fault within milliseconds of detecting it and limit the voltage of the fault to below the point where it can start a fire. This is only applicable on 3 wire systems and it requires significant modifications to the circuits.
 - Yes No **Circuit being considered for REFCL?** (Please include [REDACTED])
 - If Yes, then System Automation will need to provide Planning support in adjusting necessary scope to support a future REFCL protection scheme.

- Resiliency Zones (RZ)- These are areas deemed critical in nature to support life and health in an area during significant outages and PSPS events. If in Tier 2/3 areas, underground is required. This needs to be considered when designing these zones.
 - Yes No **Circuit being considered for an RZ?** (Please include [REDACTED])
 - If Yes, additional UG and SCADA equipment may be required to support. Microgrid Strategy Implementation will need to provide Planning support in adjusting necessary scope to allow for future RZ's in the area.

CWSP SYSTEM HARDENING FIELD SCOPING DOCUMENT

Post Field Check Results

The following section will allow for brief notes from the field inspection and/or engineering analysis conducted to determine final scope recommendations.

Overhead Line Elimination:

Copy each location from the Desk-top review notes from the Overhead line Elimination recommendations and provide an affirmative response to each proposed location. The notes should be clear as to the post-field check recommended actions so that Distribution Planning can update the scoping documents.

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	OH Elimination Type (DER, Idle, Tie Rem.)	OK to Proceed (Y,N, N/A)	Field or Engineering Notes*
1*****	1*****		N/A	
1*****	1*****		N/A	
1*****	1*****		N/A	
1*****	1*****		N/A	
1*****	1*****		N/A	

*Please begin notes with LAN-ID of Estimator or Engineer who completed in analysis

Overhead to Underground Conversion:

Copy each location from the Desk-top review notes from the Overhead to Underground Conversion recommendations and provide an affirmative response to each proposed location. The notes should be clear as to the post-field check recommended actions so that Distribution Planning can update the scoping documents. Also, clear note the recommended Underground construction method Trench, Bore, or Plow-in.

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	Trench, Bore, or Plow-in	OK to Proceed (Y,N, N/A)	Field Notes*
103922836	103934187	TRENCH	YES	MGCF SECTION 1: (0.20 mi) MAINLINE & LOCAL W/ SECONDARY; SMALL LOTS; LAND RIGHTS; .3 MILES TO INCLUDE SECONDARY POLES
101463252	1*****	Trench / Bore	YES	SECTION 4: (0.17 mi) 1 PROP., 2 SVCS, NO LAND RIGHTS; TX NEAR 1 ST HSE
101469508	101463219	Trench / Bore	YES	SECTION 4: (2.38 mi) COMBINATION OF TRENCH/BORE IN ROAD 2' IN FROM FOGLINE; BOXES IN FREQUENT PULLOUTS; LOTS OF VEG ALONG RTE
101469423	101463365	Trench / Bore	YES	SECTION 4: (0.20 Mi) LAND RIGHTS REQ'D; COMBINATION TRENCH/BORE ALONG DRIVEWAY
101463369	101463365	Trench / Bore	YES	SECTION 4: (0.12 mi) TRENCH ALONG DRIVEWAY
101466962	101469508	Trench / Bore	YES	SECTION 3: RELOCATE 4325' (.82 mi) CROSS COUNTRY OVERHEAD LINE TO ROAD AS 4150' UNDERGROUND FOR RESILIENCY AND TO AVOID FUTURE VEGETATION MANAGEMENT AND RISK.
1*****	1*****		N/A	
1*****	1*****		N/A	
1*****	1*****		N/A	

CWSP SYSTEM HARDENING FIELD SCOPING DOCUMENT

1*****	1*****		N/A	
103922244	103934073	HARDEN IN PLACE	YES	SECTION 2: 1550' (0.29 mi);
101463219	103921943	HARDEN IN PLACE	YES	SECTION 5: 7600' (1.44 mi)
103921944	101456258	HARDEN IN PLACE	YES	SECTION 6: 8121' (1.54 mi)
1*****	1*****		N/A	
1*****	1*****		N/A	
1*****	1*****		N/A	

*Please begin notes with LAN-ID of Estimator or Engineer who completed in analysis

Relocation of Facilities:

Copy each location from the Desk-top review notes from the Relocation of Facilities recommendations and provide an affirmative response to each proposed location. The notes should be clear as to the post-field check recommended actions so that Distribution Planning can update the scoping documents.

SAP Equip. ID (Start)	SAP Equip. ID (Finish)	OH, Trench, Bore, Plow-in	OK to Proceed (Y,N, N/A)	Field or Engineering Notes*
1*****	1*****		N/A	
1*****	1*****		N/A	

*Please begin notes with LAN-ID of Estimator or Engineer who completed in analysis

Additional Notes and attachment descriptions:

OVERALL, THE PROJECT AS SCOPED FROM DESKTOP IS GOOD. I ADJUSTED SOME OF THE LENGTHS DOWN DUE TO DUPLICATION OF THE PROPOSED ROUTE WITHIN THE GIVEN SAP IDs. THE ROUTE IS VIABLE. ON IRON MTN RD. THERE WILL BE SOME LAND RIGHTS REQ'D FROM US GOV'T AND ONE NEIGHBOR, BUT MOST SHOULD FIT WITHIN ROADWAY FRANCHISE.

THE TRENCH ALONG IRON MTN RD.FOR THE MOST PART WILL BE A SINGLE LIFT WITH A LOADED DUCT AND A SPARE; BOX PLACEMENT SHOULD RANGE FROM 600' TO 800'; THERE WILL BE MINIMAL PM EQUIPMENT AND WHERE IT IS NEEDED, SHOULD BE ABLE TO PLACE IN A SAFE LOCATION.TRENCH LINE TO BE 2-3 FEET INSIDE FOGLINE.

TAPLINES IN THE UG AREA N/O SPRING CREEK ARE LIMITED TO FOUR SHORT RUNS WITH FIVE SERVICES; MOST LAND IS US GOV'T, FUTURE SERVICE WORK UNLIKELY; 1 CAPACITOR BANK TO PLACE.

THERE IS ONE BRIDGE TO CROSS OVER A YEAR AROUND CREEK, WE SHOULD BE ABLE TO ATTACH TWO DUCTS TO IT. THE ROAD IS LIGHTLY TRAVELLED WITH TRAFFIC LIMITED TO LOCAL RESIDENTS/MINE AND USE OF THE GUN RANGE. TRAFFIC CONTROL COSTS SHOULD SEE REDUCTION AND POSSIBLY GREATER IF WE ARE ABLE TO CLOSE ACCESS FOR EXTENDED PERIODS.

IN KESWICK, RECL 1586 WILL NEED RELOCATION, UG TO NORTH SHOULD GO DOWN MARKET ST (ACCESSIBLE YEAR AROUND) IN EDGE OF ROAD TO BEYOND TRANS TOWER LINE AND RISER UP NEAR SAP ID 103922244. THIS SECTION WILL LIKELY REQUIRE LAND RIGHTS DUE TO SMALL LOTS, SECONDARY SYSTEM, AND TRANSFORMERS.

IN GENERAL, CLOSE PROXIMITY TO REDDING SHOULD KEEP THE SPOIL DISPOSAL COSTS DOWN (15 MINUTES ONE WAY). IF THE ROAD IS CONTROLLED BY SHASTA CO., TRENCH BACKFILL IS REQUIRED TO BE POPCORN SLURRY.

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THE SOIL IN THE AREA IS LARGELY DECOMPOSED GRANITE WITH SOME OUTCROPPING OF WEATHERED ROCK; CIVIL CONSTRUCTION SHOULD BE ABLE TO OPEN TRENCH, BORE, OR A COMBINATION OF BOTH.

RECOMMEND EACH SECTION AS A SEPARATE PROJECT. IN **SECTION 2**, BARE 397A MIGHT BE CONSIDERED IN PLACE OF 397A TW DUE EXCESSIVE SAG ISSUES OR CONSIDER INSTALLING POLES FURTHER DOWN INTO GORGE TO REDUCE THE LONG SPAN IF POSSIBLE.

RECOMMEND THAT **SECTION 3** BE RELOCATED TO IRON MTN ROAD AND UNDERGROUNDED. WORK WITH **SECTION 4** AS A COMBINED SINGLE PROJECT. WHILE IT IS LONG, IT IS SIMPLE IN SCOPE WITH SIMILAR MATERIALS AT MOST LOCATIONS.

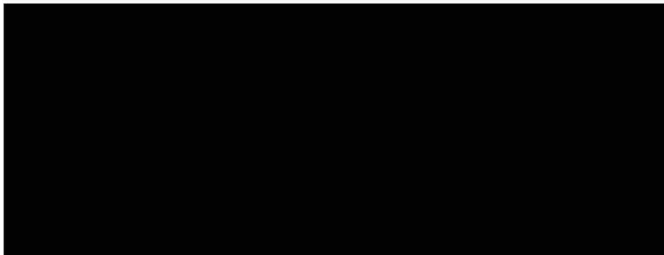
SECTIONS 5&6 HARDEN IN PLACE AND REDUCE SPANS LENGTHS WHERE POSSIBLE.

Approval(s):

Project Manager -

Estimating -

Asset Strategy -



Date:

Date: EDRS

Date: EDRS