

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-15(19)	2009	3	59

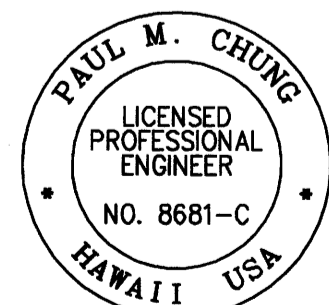
GENERAL CONSTRUCTION NOTES:

1. The project includes repairs at six (6) various sites. Work involves pavement and shoulder reconstruction, slope stabilization, tree trimming, slope scaling, headwall reconstruction, wingwall repairs, guardrail installation, striping and marking and other related repairs.
2. The Contractor's attention is directed to the following Sections of the Special Provisions: Subsection 104.11 - Utilities and Services, Section 107 - Legal Relations and Responsibility to Public, and Section 645 - Work Zone Traffic Control.
3. The Contractor shall notify the State in writing, two (2) weeks prior to starting paving operations.
4. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.
5. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of the work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
6. The exact locations and limits or areas to be reconstructed and cold planed shall be determined in the field by the Engineer.
7. Preformed Pavement Marking Tape shall be removed prior to resurfacing. Removal shall be by scraping, grinding or other method approved by the Engineer. Payment shall be incidental to Item No. 401.0100 - Hot Mix Asphalt Pavement, Mix No. IV.
8. The Contractor shall remove and dispose of all existing raised pavement markers prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to Item No. 401.0100 - Hot Mix Asphalt Pavement, Mix No. IV.
9. Smooth riding connections shall be constructed at all limits of resurfacing including the beginning and end of project, side streets and driveways as shown on the plans and/or as directed by the Engineer.
10. Existing drainage system will be functional at all times during construction. Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to the various contract items.
11. Contractor shall provide for access to and from existing side streets and driveways at all times.
12. All saw cutting work shall be considered incidental to Item No. 401.0100 - Hot Mix Asphalt Pavement, Mix No. IV, and will not be paid for separately.
13. Initial preparation of shoulder areas shall be done by the

- Contractor. Shoulder preparation shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable excavated material from roadway reconstruction and cold planing, as shown on the plans and/or as directed by the Engineer. Contractor shall also be responsible for finish rolling and maintaining the shoulders until project completion. This work shall be considered incidental to Item No. 401.0100 - Hot Mix Asphalt Pavement, Mix No. IV.
14. Unprotected pavement dropoffs greater than 2" shall not be allowed during non-working hours, except where approved by the Engineer in writing.
 15. Public Notice is required for lane closures. Contractor shall submit notice to the Engineer for approval a minimum of three weeks prior to publication. Pre-approval of notice, with dates left blank, is permissible.
 16. Contractor shall maintain at least one paved shoulder free and clear of debris for pedestrian and bicycle traffic at the end of each work day.
 17. The Contractor's attention is called to Section 407 - Tack Coat of the Special Provisions.
 18. Temporary striping on cold planed surfaces shall be with paint (tape will not be allowed). Temporary striping on final overlay shall be with temporary tape.
 19. The Contractor shall install milled rumble strips along shoulder lengths, except at right turn acceleration and deceleration lanes.
 20. Pavement striping shall be done with alkyd-based thermoplastic.
 21. Lane closures or detours that slow down traffic shall not occur during peak hours (6:30 am to 8:30 am and 3:30 pm to 6:00 pm). If the Contractor elects to perform work at night, and is approved by the Engineer, a noise variance permit shall be obtained at his cost with no additional time.
 22. Cold planing of adjacent travel ways shall be completed on the same day. Temporary pavement markings shall be installed prior to the end of each work day.
 23. If night work is approved, the Contractor shall stop all work and contact the Fish and Wildlife Service (800 344-9453) if bats or birds are seen flying around the work area at night.
 24. The Contractor shall schedule work around the Ironman Triathlon Race activities in September and/or October. All pavement and shoulder areas shall be restored to smooth riding condition, completely cleaned and pavement striping installed. No construction work shall be permitted during the Triathlon period (beginning 30 days prior to and one day after event day).
 25. When trench excavation is adjacent to or under existing structures or facilities, the contractor shall be responsible for

properly sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins and settlement and for properly supporting existing structures and facilities with beams, struts or underpinning to fully protect them from damage.

26. All excavation work called for on the plans and not itemized in the proposal and all excavation work not called for but required for the construction of this project shall be considered incidental to unclassified trench excavation.
27. Verify and check all dimensions and details shown on the drawings prior to the start of construction. any discrepancy shall be immediately brought to the attention of the Engineer for direction.
28. No Contractor shall perform any construction activity so as to cause falling rock, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural water courses. should such violations occur, the costs incurred for any remedial action shall be payable by the contractor.
29. The underground pipes, cables or ductlines known to exist by the engineer from his search of records are indicated on the plans. the contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. all damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company and shall be the contractors responsibility. personal injury resulting from contact with existing utilities shall be the contractors responsibility. wherever connections of new utilities to existing utilities are shown on the plans, the contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for new lines.
30. The Contractor shall be responsible for conformance with the applicable provisions of chapter 54, water quality standards, and chapter 55, water pollution control, of title 11, administrative rules of the state department of health.
31. The Contractor shall notify all agencies to verify the actual locations of all utilities in the project area prior to excavating. the Contractor shall coordinate all work.
32. The Contractor shall restore to their original condition or better, all improvements damaged as a result of the construction, including pavements, embankments, curbs, signs, landscaping, structures, utilities, walls, fences, etc. unless provided for specifically in the proposal. demolition and restoration of existing items shall be incidental and included within the amount paid for unclassified trench excavation.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SIGNATURE

04/30/10
EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GENERAL CONSTRUCTION NOTES	
EMERGENCY EARTHQUAKE ROCKFALL REPAIRS	
Various Locations on Hawaii, Unit 1 Federal Aid Project No. ER-15(19)	
Scale: AS NOTED	Date: Dec. 18, 2009
SHEET No. 1 OF 4 SHEETS	

GENERAL CONSTRUCTION NOTES (CONTINUED):

34. The Contractor shall restore to their original condition or better, all improvements damaged as a result of the construction, including pavements, embankments, curbs, signs, landscaping, structures, utilities, walls, fences, etc. unless provided for specifically in the proposal. Demolition and restoration of existing items shall be incidental and included within the amount paid for unclassified trench excavation.
35. Temporary cold mix trench patches will be permitted in any given area for a maximum duration of two weeks, and shall be a minimum of 2 inches thick. all temporary patches shall be placed over properly placed and compacted backfill and base course layers. contractor shall be responsible for maintaining all temporary patches and to make repairs to unsatisfactory patches within 24 hours.
36. The Contractor shall exercise extreme caution to preserve centerline and reference survey monuments.
37. Monuments that are disturbed shall be restored under the licensed land surveyor's direction. any new data such as elevations shall be certified by the surveyor, and submitted to the Engineer.
38. The Contractor shall be responsible for replacing/reconstructing all concrete curbs and gutters, concrete swales, driveways and sidewalks damaged during construction.
39. Where pedestrian walkways exist they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. passages between walkways at intersections shall likewise be provided.
40. Existing topographic data was taken from topographic map prepared by Imata and Associates, Inc., completed on December 2008.
41. All work called for on the plans and not itemized in the proposal and all work not called for but required for the construction of this project, shall be considered incidental.
42. No blasting shall be allowed on this project.
43. The contractor shall remove all existing trees within project area, unless otherwise noted on plans.
44. All earthwork shall be done in accordance with the Technical Memorandums provided by Geolabs, Inc. dated February 27, 2009.
45. The Contractor shall notify the One Call Center at (866) 423-7287 at least five (5) days prior to the start of excavation or trenching.
46. To minimize potential impacts to Hawaiian Hoary Bats, woody vegetation taller than 15 feet high shall not be cleared between May 15 and August 15.
47. If brush clearing activities occur between April 1 and April 15 (peak Hawaiian Hawk breeding season), area shall be surveyed by a qualified biologist for nesting hawks, prior to commencement of brush or tree clearing. No activities will be permitted within 1,320 feet of an active Hawaiian Hawk nest.

48. In the event that historic resources, including human skeletal remains, cultural materials, lava tubes and lava blisters\bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find. The find needs to be protected from additional disturbance and the State Historic Preservation Division, Hawaii Island Section needs to be contacted immediately at (808) 933-7653.

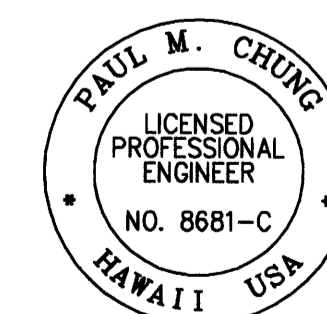
GENERAL NOTES FOR TRAFFIC CONTROL PLAN:

1. The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
2. Flaggers, Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
4. Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered. All signs shall be restored upon completion of work.
5. Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
6. When required by the issuing office, the permittee shall install a variable message board as shown in the traffic control plans.
7. Sign spacings (D), taper lengths (T), and spacings of cones or delineators shall be as shown in Table 1, unless otherwise noted on the traffic control plans.
8. All traffic lanes shall be a minimum of 10 feet wide.
9. All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
10. The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
11. At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
12. Permanent pavement markings and traffic signs shall be replaced upon the completion of each phase of work.
13. All work zone traffic control devices shall comply with the "Manual on Uniform Traffic Control Devices," 2003.

TABLE 1 FOR TRAFFIC CONTROL PLAN

Posted Speed Limit (M.P.H.)	Sign Spacing (D) (Feet)	Taper Length (T) (Feet)		Longitudinal Buffer Space (B) (Feet)	Spacing of Cones or Delineators (Feet)		
		W = 12' or Less [Ⓢ]	W = Greater Than 12' [Ⓢ]		Taper	Tangent	Work Area
20	250	200	W X 17	35	20	20	10
25	250	200	W X 17	55	25	25	10
30	250	250	W X 20	85	30	30	10
35	250	250	W X 20	120	35	35	10
40	500	350	W X 30	170	40	40	10
45	500	550	W X 45	220	45	45	10
50	1000	600	W X 50	280	50	50	10
55	1000	700	W X 55	335	55	55	10

[Ⓢ] Notes: W = Width of Lane, Shoulder, or Offset



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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>GENERAL CONSTRUCTION NOTES</u>	
<u>EMERGENCY EARTHQUAKE ROCKFALL REPAIRS</u>	
<u>Various Locations on Hawaii, Unit 1</u>	
<u>Federal Aid Project No. ER-15(19)</u>	
Scale: AS NOTED	Date: Dec. 18, 2009
SHEET No. 2 OF 4 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-15(19)	2009	4	59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-15(19)	2009	5	59

GENERAL STRUCTURAL NOTES:

- Dressing of shoulder shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable material as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items.
- All welding - whether shop or field - shall be done by certified welders only.
- Discrepancies - Contractor shall verify all dimensions and conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.
- Details shown on drawings shall be typical for all similar conditions. Modify details for special conditions as directed by the Engineer.

REINFORCING STEEL NOTES:

- Reinforcing bars shall conform to
Deformed steel ASTM A615
Welded wire fabric ASTM A185

Strength: unless otherwise noted on plan, all reinforcing bars shall be;

- Deformed bar . . . 60 ksi
- Welded wire fabric . . . 70 ksi

CONCRETE NOTES:

- Portland cement shall conform to ASTM C150, Type I or Type II.
- All concrete shall develop the following minimum compressive strengths, with corresponding maximum size of aggregates and water/cement ratios as follows (unless shown elsewhere in schedules):

Element	28-day Strength (psi)	Maximum Size (inch) Aggregate	Water/Cement Ratio
a. Headwall	4000	¾	0.40

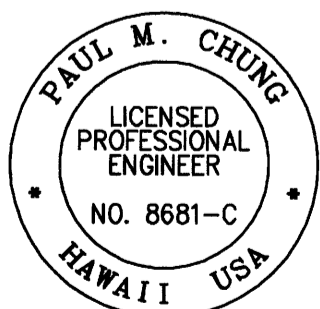
- Admixtures: use of admixture at Contractor's option, but subject to Engineer approval.
- The use of any calcium chloride in any concrete is prohibited.
- Minimum concrete clear cover unless specified otherwise in drawings:
 - Headwall 2"

CULVERT LINING NOTES:

- The culvert surface shall be cleaned of all dirt, rust, scale, and other foreign materials. Cut, remove and dispose of corroded sections as ordered by the Engineer in increments not exceeding 50-feet in length.
- The Contractor shall provide adequate bracing for the culvert. The Contractor shall, at his own expense, consult with a Geotechnical and/or Structural Engineer to determine the required amount of bracing based on his construction methodology.
- The culvert surface to be in contact with the epoxy shall be clean and dry. Apply one coat of epoxy bonding agent to the contact area between the existing/prepared concrete and the newly applied concrete according to the manufacturer's specifications. The epoxy bonding agent shall be applied just before the placement of the concrete. Any excess bonding agent that collects in pockets shall be removed.
- The Fiber Reinforced concrete for the culvert lining shall have a minimum 28-day strength, f'c of 4,000 psi. A shrinkage reducing admixture, Tetraguard AS20, Eclipse Plus or an approved equal shall be incorporated into the concrete at a minimum dosage of 96 ounces per cubic yard of concrete mixture. The total free water shall not exceed 94 pounds per cubic yard of concrete and the water cement ratio shall not exceed 0.45. The slump of the concrete shall be 4 to 7 inches. Use water-reducing, water-reducing and retarding, or high range water reducing admixtures as needed to achieve the desired slump and workability. The Contractor shall proportion the concrete lining mixture to provide a workable mix of uniform composition and consistency. No water shall be added at the jobsite.
- Voids under the structural plate shall be filled with Fiber Reinforced concrete. The concrete shall be troweled to form a smooth, dense surface finish.
- The concrete culvert lining shall be scored 1/8-inch wide, 1-inch deep transversely along the crest of the corrugations, 10-feet (max) on-center.
- Apply two coats of one-foot wide Asphalt Waterproofing to both edges of the new concrete lining and scores after the new concrete lining has cured. The finished coating shall be a continuous film free of voids, gaps or pin holes.
- All construction joints shall be perpendicular to the surface and to the full depth of the concrete lining.
- The Contractor shall pour the concrete lining for the culverts during dry weather conditions only. The Contractor shall allow a minimum curing period of 48 hours before allowing flow on the completed concrete lining.
- Fiber Reinforced concrete lining shall be paid on a cubic yard basis under Item 653.0100 Fiber Reinforced Concrete Lining for Culverts.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
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SLOPE TRIMMING/SCALING NOTES

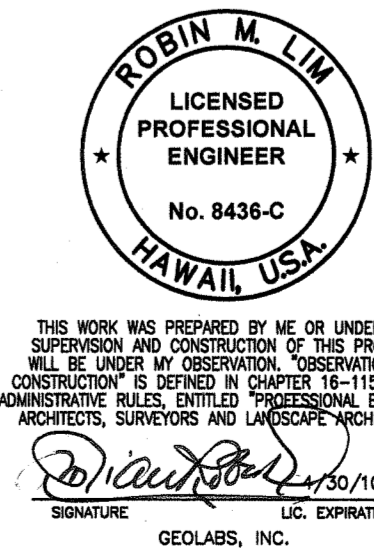
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- Slope trimming/scaling activity for the project will be limited to only off peak hours unless otherwise approved in writing. Peak hours are from 6:00 AM to 8:30 AM, and from 3:30 PM to 6:00 PM, Monday through Friday, excluding State holidays. The slope trimming/scaling activities, including removing debris from the highway during and at the end of each slope trimming/scaling shift, shall be conducted within the off-peak hours specified above.
- All lanes shall be open to traffic during the hours from 6:00 AM to 8:30 AM, and during the hours from 3:30 PM to 6:00 PM. Only one lane of traffic may be closed at any other time unless otherwise approved in writing.
- The minimum slope trimming/scaling crew shall consist of one scaling supervisor and three (3) slope scalers. Two additional slope scalers may be utilized under the supervision of the same scaling supervisor.
- ~~The Contractor shall determine the number of slope scalers to be employed on this project based on the extent of the slope trimming/scaling to be performed and the maximum duration of 3 weeks specified for slope trimming/scaling. The Engineer must approve the number of additional slope scalers proposed for the project in addition to the minimum scaling crew specified.~~
- The Contractor shall not commence slope scaling/trimming work until acceptance of the Contractor's qualifications and work plan is obtained from the Engineer in writing.
- The Contractor shall be responsible for protecting the highway pavements, walls, guardrails, and all other appurtenances from damage resulting from the Contractor's activities. The highway shall be protected from damage by laying protection mats over the road surface and/or other methods with prior approval from the Engineer. The Contractor shall be solely responsible for repairing any damage resulting from the slope trimming/scaling or other construction activities.
- A pre-construction condition survey of the existing highway, walls, guardrails, and all other appurtenances shall be conducted by the Contractor prior to commencement of the slope trimming/scaling activities. A copy of the pre-construction condition survey shall be submitted to the Engineer for information only.
- Cut and remove all growing and dead vegetation materials (branches, trunks, and stumps) from the slope face and crest of slope (brow) extending back 5 feet from top of slope or top of bank.
- Removal should include all overhanging roots including loose entrained soils and rocks along the top of the slope (brow) to develop a clean, uniform and rounded crest of slope free of over hanging material and loose, broken, or unstable soil/rock materials.
- Large trees located within 5 feet of the top of slope (brow) with trunk diameters larger than 18-inch shall remain.
- Cut and remove all draped vegetation materials to provide unimpeded access to the slope face and exposure of the slope face. Draped branches shall be cut back 5 feet from the top of slope (brow). Cut and remove all visible surface root growth from slope face including surface root webbing and protruding root materials.

- Cutting and removal of all vegetation from the slope face and within 5 feet of the top of slope shall be completed before initiating the slope scaling/trimming activities.
- The Contractor shall provide the Engineer with a minimum of 48 hours of advance notice to schedule a field review of the slope face after cutting and removal of all vegetation and before commencing slope scaling/trimming activities. Slope scaling/trimming activities shall commence only after the field review of the slope face by the Engineer.
- The Contractor shall erect a movable temporary rockfall barrier (minimum 120 feet long by 10 feet high) within the active trimming/scaling in an attempt to contain the rocks and debris generated from the slope trimming/scaling work from going over to the open travel lane. The movable temporary rockfall barrier shall be fabricated from a ring net or cable net system capable of handling 74-foot tons of impact energy.
- Appropriate communication equipment will be required to enable the Engineer to communicate with the scaling supervisor and/or slope scalers for safety considerations.
- Slope trimming/scaling work shall begin only after the highway protection measures, as described in the work plan, are in place at the beginning of the slope trimming/scaling work. The Contractor shall protect the public from any rockfall hazards at all times.
- Start all slope trimming/scaling at the top of the slope and proceed down slope in preset lateral distance increments. Removing loose rock and other debris as the work progresses. All material on the slope face that is loose, hanging or creates a safety hazard to the public must be removed or stabilized, to the Engineer's satisfaction, during or on completion of the section of slope.
- The Contractor shall exercise extra care in the slope trimming/scaling and shall avoid over-steepening the slope face that may cause instability of the slope face. If during the slope trimming/scaling work, the Contractor encounters unstable slope conditions that may constitute a potential slope stability issue, immediately notify the Engineer.
- Slope scalers may use climbing ropes and high-angle climbing techniques or a cherry picker basket suspended by crane or man-lift to access the slope.
- Trimming/scaling should be performed by manual labor using tools such as scaling bars and saws to pick, pry, peel, or abrade the loose unstable materials from the slope face.
- Mechanized equipment such as a backhoe may be used to carefully knock loose or peel back the larger separated slabs of saprolitic materials where clearly slope fracture and slope face separation planes are encountered, when accepted by the Engineer.
- Backhoe shall not be used to remove brow overhangs and root network from the top of slope brow area. Backhoe shall not be used to excavate the slope face consisting of undisturbed, fracture-free and stable earth materials.
- Remove existing loose rocks and masses of saprolitic materials from the slope face to produce a clean, uniform, smooth slope face free of major protrusions and overhangs composed of broken fractured and/or loose earth materials.

- Slabs of saprolitic material separating from the slope face and pierced by invasive levering tree roots shall be completely removed to expose underlying firm stable earth material that is free of tree root penetration.
- The Contractor shall sweep the highway clean of all debris at the end of each slope scaling shift.
- The Contractor shall maintain equipment on-site at all times to remove debris from the highway to allow the passage of emergency vehicles in the event that emergency vehicles require passage through the project area along the highway. The slope trimming/scaling activities shall be temporarily suspended to allow the passage of the emergency vehicles through the project area along the highway.
- No blasting will be allowed on this project.

SURVEY PLOTTED BY	DATE
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3/18/10	Deleted Note 4 in its entirety
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
SLOPE TRIMMING AND SCALING NOTES	
EMERGENCY EARTHQUAKE ROCKFALL REPAIRS	
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